# Cassette deck 70FR900/00G/05G/17G

Service
Service
**Service**

# Service Manual

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Safety regulations require that the set be restored to its orginal condition and that parts which are identical with those specified be used.

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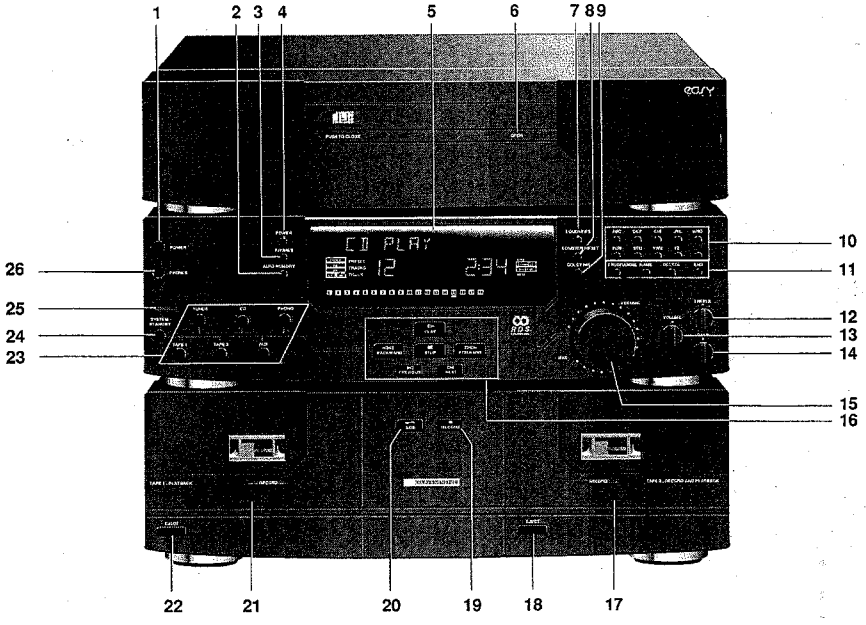
# CONNECTIONS AND CONTROLS




1 **POWER** – switching the system on and off
2 **AUTOMEMORY** – automatic programming of tuner preset stations in the FM waveband
3 **WAVEBAND** – selecting FM, AM, MW or LW band
4 **MONO** – selecting mono reception
5 **Display**
6 **OPEN** – opening the CD compartment
7 **LOUDNESS** – increasing the treble and bass response
8 **COUNTER RESET** – returning the counter for the chosen cassette deck in the display to 0000
9 **DOLBY NR** – switching on/off the Dolby Noise Reduction system
10 **Numbered keys**
– selecting 23 preset stations and entering data when programming a station name
– selecting track numbers
11 **Programming controls:**
– **PROGRAM** – storing CD tracks in a programme
– **NAME** – entering a name for a preset radio station
– **DELETE** – deleting the programmed information shown on the display.
– **END** – finalizing the programme or name entered
12 **TREBLE** – adjusting the high tones
13 **BALANCE** – adjusting the balance of the volume between the left and right speakers
14 **BASS** – adjusting the bass tones
15 **VOLUME** – adjusting the volume; the LED of this control flashes during IR reception.
16 **Operational controls**

These keys have indicators that light up **red** when the function they control is active. The other available keys are coloured **green**. If the key is not illuminated, it has no function.

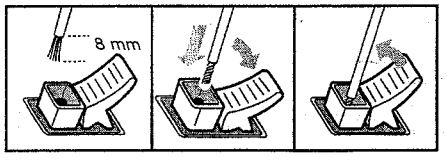
**PLAY ▶**
– playing/replaying a CD (or CD programme)
– playing a cassette (TAPE 1 or TAPE 2)
**STOP ■**
– stopping playback, recording, winding, tuning or programming
◀◀ BACKWARD , FORWARD ▶▶
– tuning forward/backward
– fast tape winding forward/backward (in the play direction or opposite to the play direction)
– fast search for a CD passage during play
⏮ PREVIOUS , NEXT ⏭
– selecting the previous or next preset station
– selecting the previous or next track on CD or cassette

17 **Cassette holder TAPE 2** – recording and playback in both directions. A green light indication appears when a cassette is inserted and the power is switched on (not in stand-by mode).
18 **EJECT** – opening the cassette holder of TAPE 2
19 **RECORD**
– starting recording
– recording a pause when the set is in the recording mode
20 **SIDE** – reversing the side of the tape that is being played or recorded. (TAPE FRONT or TAPE BACK) You can also press the button during playback. After switching on the power, the unit always automatically selects TAPE FRONT.
21 **Cassette holder TAPE 1** – playback in both directions
A green light indication appears when a cassette is inserted and the power is switched on (not in stand-by mode).
22 **EJECT** – opening the cassette holder of TAPE 1
23 **Source selectors**

These keys have indicators that light up **red** when the source is selected. The other available sources are coloured **green**.

During recording two indicators are coloured red: TAPE 2 and the source from which you are recording.
24 **STAND BY** – switching to stand-by mode
In stand-by mode the LED of this key is the only one that lights up.
25 **IR** – infrared remote control eye and light sensor
26 **PHONES** – socket for stereo headphones
• You may connect a pair of stereo headphones with 6.3 mm plug to this socket. Inserting the plug will disconnect the speakers.

A **SPEAKERS** – terminals for a pair of speakers, impedance 8 ohms (L = left, R = right).
• One of the wires of a loudspeaker cable is marked, e.g. with a colour or rib. Connect the marked wire to the red terminal, the non-marked wire to the black terminal.




B **REMOTE CONTROL IN/OUT**
• Connect this socket to the input socket of external equipment that uses the RC-5 remote control system.
In this way you can operate external sets by remote control through the sensor of the receiver.
You can control the system from another room by placing a EM 2200 'Pyramid' remote control receiver in the room and connecting it to the RC-5 input on the receiver. The 'Pyramid' will pass on signals from the remote control handset into the receiver.

**C FM-ANTENNA**
The FM-ANTENNA socket is used for connection to the Community or Cable Antenna System or to a roof-mounted FM aerial with an impedance of 75 ohms. If none of these are available, you may use the wire supplied for nearby stations (performance could be poor).

**D LOOP ANTENNA**
For AM (MW/LW) reception connect the wires to both LOOP ANTENNA terminals and position the antenna for best reception.
***Note:*** Do ***not*** place the AM loop antenna on the unit as this unit employs a computing device which may result in noise generation.

**E Flat cable** – connecting the CD player to the amplifier

**F CD PLAYER** – socket for the CD player
***Note: Switch off the set before connecting or disconnecting the cable of the CD player.***
- Connect the CD player supplied to this socket by inserting the plug until it clicks firmly in place.
  This special connection also supplies power to the CD player and allows you to operate the CD player by remote control through the sensor of the receiver.
- Disconnect the CD player by pressing the snaps left and right together and pulling out the plug.

**G CASSETTE DECK** – socket for the cassette deck
***Note: Switch off the set before connecting or disconnecting the cable of the cassette deck.***
- Connect the cassette deck to this socket by inserting the plug until it clicks firmly in place.
  This special connection also supplies power to the cassette deck and allows you to operate the cassette deck by remote control through the sensor of the receiver.
- Disconnect the cassette deck by pressing the snaps left and right together and pulling out the plug.

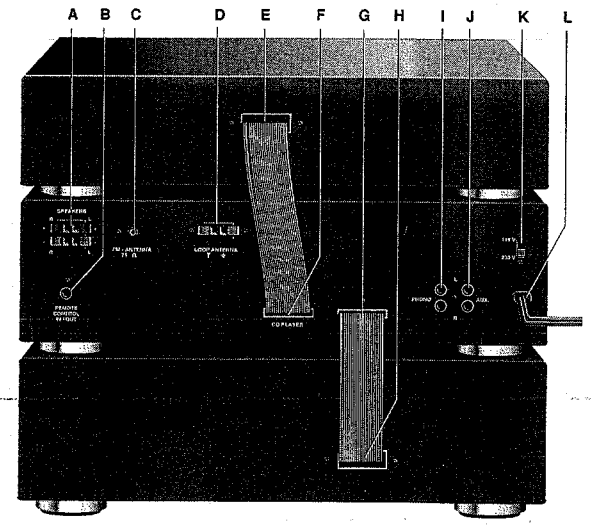
**H Flat cable** – connecting the cassette deck to the amplifier

**I PHONO** – input sockets for connecting a record player with a magneto-dynamic pick-up cartridge.

**J AUX** – input sockets for connecting external equipment, e.g. the sound channel of a TV or a video recorder.

**K Voltage selector** – selecting the mains voltage (not on all versions)

**L MAINS** – mains lead




## SPECIFICATION

Power supply
(complete system)
AC mains (50/60 Hz)
European versions : 220 V (/05: 240 V)
Overseas versions : 110 - 120/220 - 240 V, switchable
Low-voltage outlet (12 V DC) : for supply of cassette deck and player

**FM section**
Wave range : 87.5 - 108 MHz
Sensitivity at 75 ohm
mono, 26 dB S/N : 1.3 µV at 75 kHz deviation
stereo, 46 dB S/N : 25 µV at 75 kHz deviation
Selectivity : 60 dB for 300 kHz off resonance
THD : 0.3 %
Frequency response : 30 - 15,000 Hz + 0.5 - 2 dB
S/N ratio (mono/stereo) : 74 dB/68 dB
Stereo seperation (1kHz) : 40 dB
Image rejection : 75 dB
IF suppression : 80 dB
Aerial input : 75 ohm coax

**AM section**
Wave ranges : LW 153 - 281 kHz
MW 531 - 1602 kHz

**Amplifier**
Output power : 100 W at 8 ohm, 1 kHz, D ≦ 10 %, ± 1 dB
70 W at 8 ohm, 1 kHz, D ≦ 1 %
Distortion
THD : 0.09 % at 57 W for 1 kHz, 8 ohm
Power bandwidth (D ≦ 1 %) : 10 - 30,000 Hz (at - 3 dB)
Frequency response
linear inputs : 20 - 20,000 Hz, ± 1.5 dB
equalized inputs : 20 - 20,000 Hz, ± 2 dB
S/N ratio : 80 dB weighted
Stereo separation : 60 dB at 1 kHz

**Controls**
Bass : + 10 to - 10 dB at 80 Hz
Treble : + 10 to - 10 dB at 10 kHz
Loudness : + 8 dB at 125 Hz, + 4.5 dB at 6.3 kHz
Balance control : 0 - 45 dB

**Inputs with sensitivity for rated output**
Phono MD : 2.5 mV at 47 kohm
Aux : 200 mV at 47 kohm

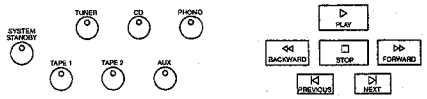
**Outputs**
2 loudspeakers : 8 ohm
Headphone : 8 - 1000 ohm

# TEST MODE

The Test Mode is started by pressing the PROGRAMME, DELETE buttons simultaneously while switching on.

**Warning!** This Test Mode cancels all data stored in the EEPROM.

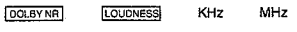
Immediately after switching on, all LEDs (except the LED in the volume control) light up red for approx. 2 seconds.




After another 2 seconds approximately, the individual display fields and LEDs are activated in a rhythm of 0.5 s.

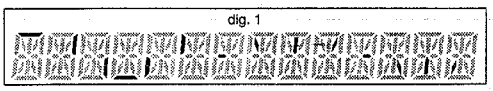
Sequence of steps:

Steps 1-4

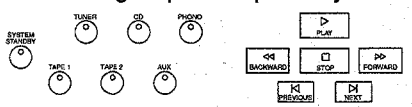



**LEDs not active!**

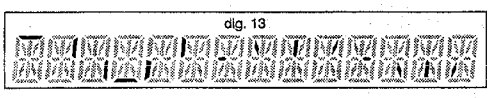
Steps 5-18



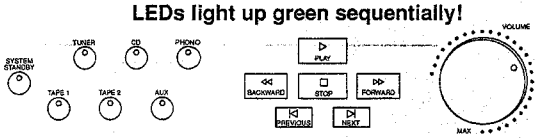

**LEDs light up red sequentially!**



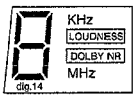

Steps 19-32



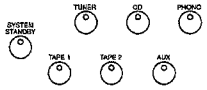

**LEDs light up green sequentially!**



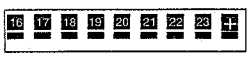

Step 33



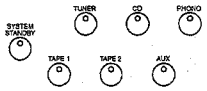

**LEDs green when active!**



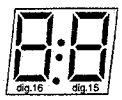

Step 34



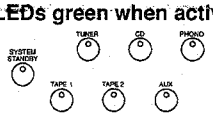

**LEDs green when active!**



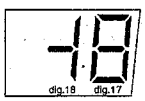

Step 35



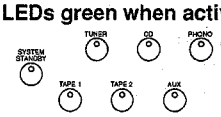

**LEDs green when active!**



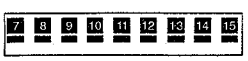

Step 36



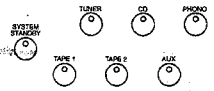

**LEDs green when active!**



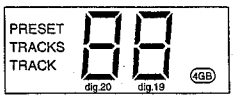

Step 37



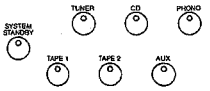

**LEDs green when active!**



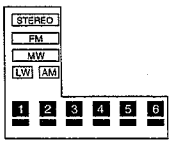

Step 38



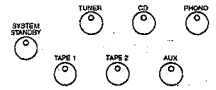

**LEDs green when active!**



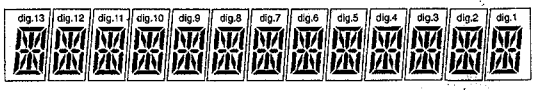

Step 39



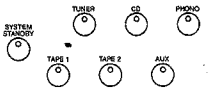

**LEDs green when active!**



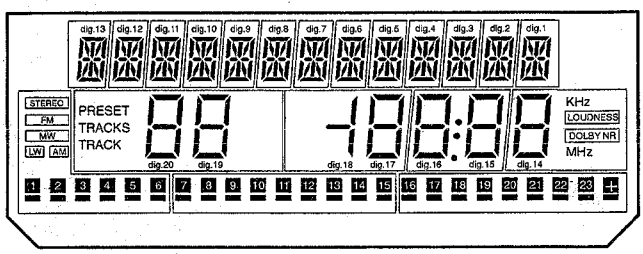

Steps 40-52



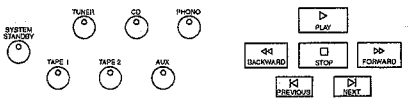

**LEDs green when active!**



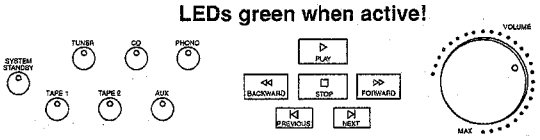

At the end of this test, the complete display is shown and the LEDs change from red to green and green to red, respectively, in the same rhythm.




**LEDs red when active!**



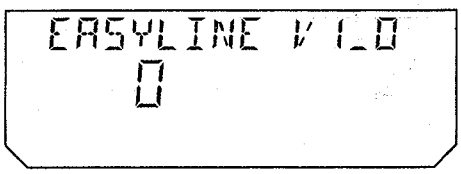

**LEDs green when active!**




The Test Mode is terminated by switching the system off.

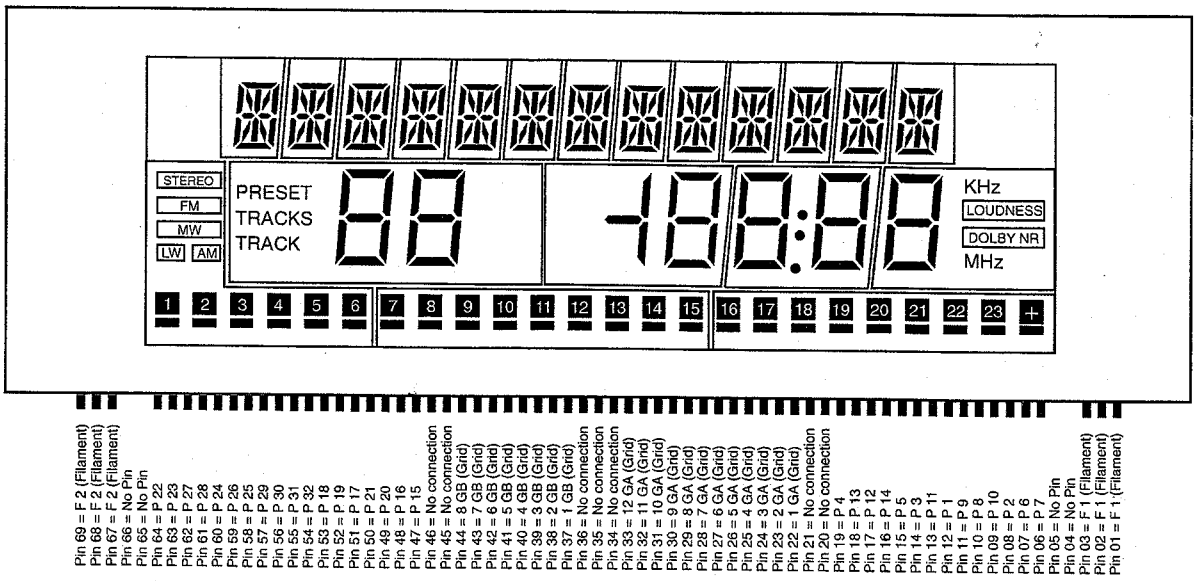
**Note:**

The CD Service Mode is activated by pressing the PROGRAMME, DELETE, END buttons simultaneously while switching on. In this mode, the software version is also indicated in the display among other things.

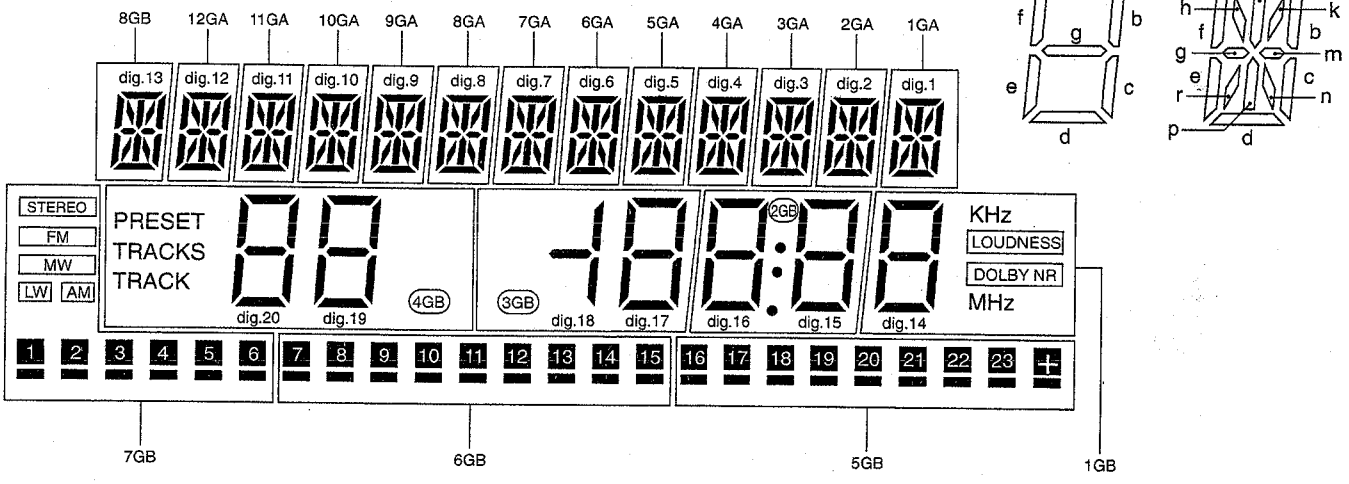


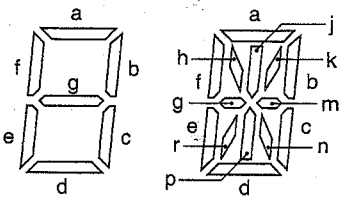

The Service Mode is also terminated by switching the system off.

# DISPLAY




Pin 69 = F 2 (Filament)
Pin 68 = F 2 (Filament)
Pin 67 = F 2 (Filament)
Pin 66 = No Pin
Pin 65 = No Pin
Pin 64 = P 22
Pin 63 = P 23
Pin 62 = P 27
Pin 61 = P 28
Pin 60 = P 24
Pin 59 = P 26
Pin 58 = P 25
Pin 57 = P 29
Pin 56 = P 30
Pin 55 = P 31
Pin 54 = P 32
Pin 53 = P 18
Pin 52 = P 19
Pin 51 = P 17
Pin 50 = P 21
Pin 49 = P 20
Pin 48 = P 16
Pin 47 = P 15
Pin 46 = No connection
Pin 45 = No connection
Pin 44 = 8 GB (Grid)
Pin 43 = 7 GB (Grid)
Pin 42 = 6 GB (Grid)
Pin 41 = 5 GB (Grid)
Pin 40 = 4 GB (Grid)
Pin 39 = 3 GB (Grid)
Pin 38 = 2 GB (Grid)
Pin 37 = 1 GB (Grid)
Pin 36 = No connection
Pin 35 = No connection
Pin 34 = No connection
Pin 33 = 12 GA (Grid)
Pin 32 = 11 GA (Grid)
Pin 31 = 10 GA (Grid)
Pin 30 = 9 GA (Grid)
Pin 29 = 8 GA (Grid)
Pin 28 = 7 GA (Grid)
Pin 27 = 6 GA (Grid)
Pin 26 = 5 GA (Grid)
Pin 25 = 4 GA (Grid)
Pin 24 = 3 GA (Grid)
Pin 23 = 2 GA (Grid)
Pin 22 = 1 GA (Grid)
Pin 21 = No connection
Pin 20 = No connection
Pin 19 = P 4
Pin 18 = P 13
Pin 17 = P 12
Pin 16 = P 14
Pin 15 = P 5
Pin 14 = P 3
Pin 13 = P 11
Pin 12 = P 1
Pin 11 = P 9
Pin 10 = P 8
Pin 09 = P 10
Pin 08 = P 2
Pin 07 = P 6
Pin 06 = P 7
Pin 05 = No Pin
Pin 04 = No Pin
Pin 03 = F 1 (Filament)
Pin 02 = F 1 (Filament)
Pin 01 = F 1 (Filament)




## ANODE CONNECTION

| | 12 GA | 11 GA | - - - - - - - - | 3 GA | 2 GA | 1 GA |
|---|---|---|---|---|---|---|
| P 1 | 12 a | 11 a | - - - - - - - - | 3 a | 2 a | 1 a |
| P 2 | 12 b | 11 b | - - - - - - - - | 3 b | 2 b | 1 b |
| P 3 | 12 c | 11 c | - - - - - - - - | 3 c | 2 c | 1 c |
| P 4 | 12 d | 11 d | - - - - - - - - | 3 d | 2 d | 1 d |
| P 5 | 12 e | 11 e | - - - - - - - - | 3 e | 2 e | 1 e |
| P 6 | 12 f | 11 f | - - - - - - - - | 3 f | 2 f | 1 f |
| P 7 | 12 g | 11 g | - - - - - - - - | 3 g | 2 g | 1 g |
| P 8 | 12 h | 11 h | - - - - - - - - | 3 h | 2 h | 1 h |
| P 9 | 12 j | 11 j | - - - - - - - - | 3 j | 2 j | 1 j |
| P 10 | 12 k | 11 k | - - - - - - - - | 3 k | 2 k | 1 k |
| P 11 | 12 m | 11 m | - - - - - - - - | 3 m | 2 m | 1 m |
| P 12 | 12 n | 11 n | - - - - - - - - | 3 n | 2 n | 1 n |
| P 13 | 12 p | 11 p | - - - - - - - - | 3 p | 2 p | 1 p |
| P 14 | 12 r | 11 r | - - - - - - - - | 3 r | 2 r | 1 r |

| | 8 GB | 7 GB | 6 GB | 5 GB | 4 GB | 3 GB | 2 GB | 1 GB |
|---|---|---|---|---|---|---|---|---|
| P 15 | 13 a | 1 | 7 | 16 | 19 a | 17 a | 15 a | 14 a |
| P 16 | 13 b | (1) | (7) | (16) | 19 b | 17 b | 15 b | 14 b |
| P 17 | 13 c | 2 | 8 | 17 | 19 c | 17 c | 15 c | 14 c |
| P 18 | 13 d | (2) | (8) | (17) | 19 d | 17 d | 15 d | 14 d |
| P 19 | 13 e | 3 | 9 | 18 | 19 e | 17 e | 15 e | 14 e |
| P 20 | 13 f | (3) | (9) | (18) | 19 f | 17 f | 15 f | 14 f |
| P 21 | 13 g | 4 | 10 | 19 | 19 g | 17 g | 15 g | 14 g |
| P 22 | 13 p | (4) | (10) | (19) | 20 a | - | 16 a | - |
| P 23 | 13 n | 5 | 11 | 20 | 20 b | 18 b | 16 b | - |
| P 24 | 13 k | (5) | (11) | (20) | 20 c | 18 c | 16 c | - |
| P 25 | 13 j | 6 | 12 | 21 | 20 d | - | 16 d | - |
| P 26 | 13 h | (6) | (12) | (21) | 20 e | - | 16 e | - |
| P 27 | 13 r | STEREO | 13 | 22 | 20 f | - | 16 f | - |
| P 28 | 13 m | FM | (13) | (22) | 20 g | 18 g | 16 g | - |
| P 29 | - | MW | 14 | 23 | TRACK | - | (Lower) | DOLBY NR |
| P 30 | - | LW | (14) | (23) | TRACKS | - | | LOUDNESS |
| P 31 | - | AM | 15 | + | PRESET | - | - | KHz |
| P 32 | - | - | (15) | (+) | - | - | - | MHz |

# SERVICING HINTS

### 1. ESD

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential. See Service Information A86 - 1000 for this.

### 2. Warning

If the set is connected to mains voltage, there is a risk of shock-hazard voltages after the set is decased.

### 3. Ceramic resonators

When replacing one of the ceramic resonators, take care that the colour codes of all three resonators are the same.

### 4. FM IF offset

The ceramic resonators have different intermediate frequencies as a result of tolerances. Dependent on the IF, a jumper has to be closed or a jumper has to be opened. B0 - B3 (see table). The resonators have been provided with a colour code.

| | Jumper | | | | |
|---|---|---|---|---|---|
| IF (MHz) | B 3 | B 2 | B 1 | B 0 | Filter color |
| 10.6500 | 0 | 1 | 0 | 0 | Black |
| 10.6750 | 0 | 1 | 1 | 0 | Blue |
| 10.7000 | 1 | 0 | 0 | 0 | Red |
| 10.7250 | 1 | 0 | 1 | 0 | Orange |
| 10.7500 | 1 | 1 | 0 | 0 | White |

0 = jumper open  1 = jumper closed

# ELECTRICAL ADJUSTMENT AND CHECK

### General

- For the HF adjustments, the injected signals should be kept as small as possible.
- Connect the frame aerial in case AM is used.
- The AM IF amplifier is adjusted with a wobbulator signal of approx. 600 kHz having a sweep of 250 kHz at a rhythm of 50 Hz.

### Measuring equipment used

- Power-supply equipment
- Oscilloscope
- DC voltmeter
- AC millivoltmeter
- Distortion meter

### ELUCIDATIONS

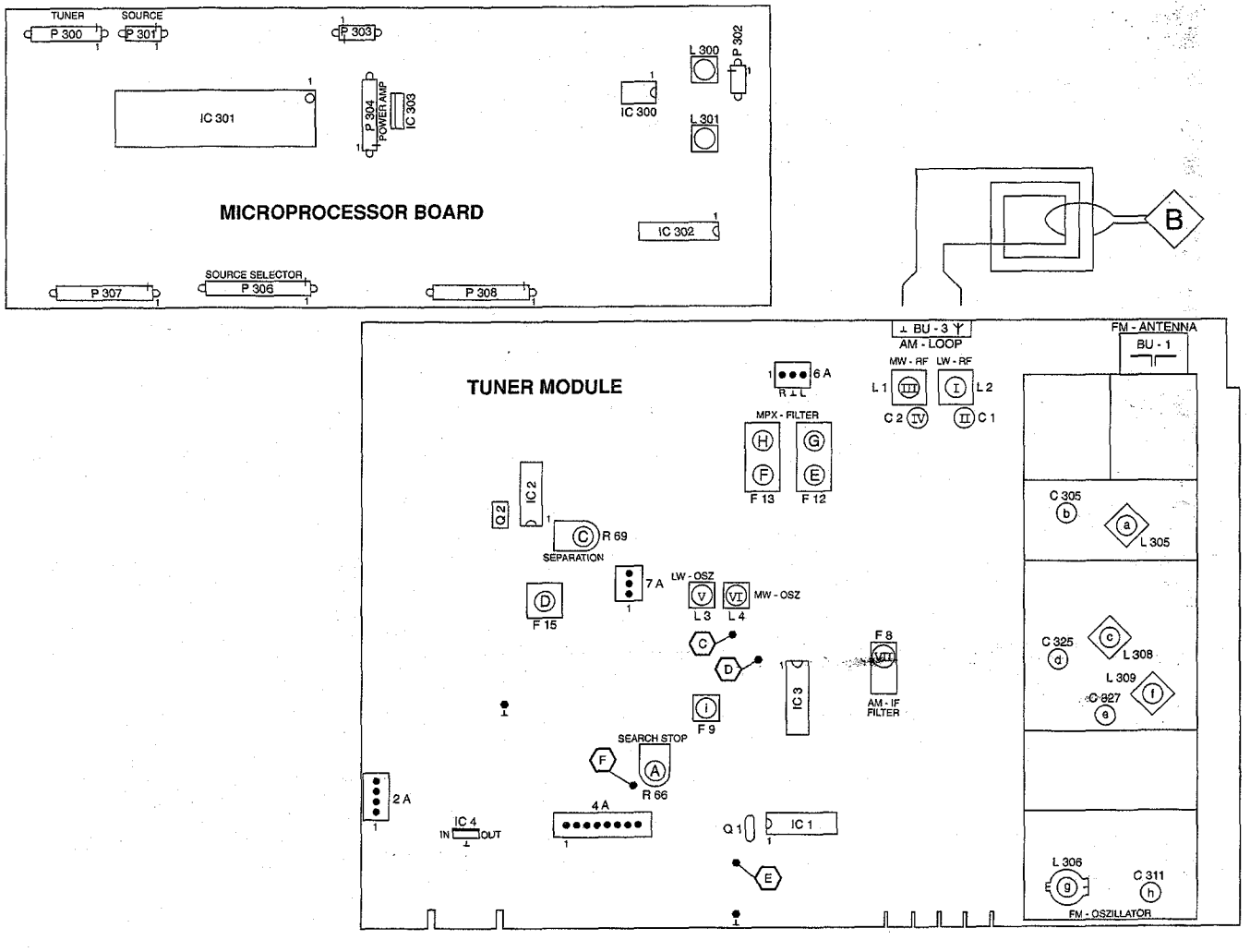
[1] Before adjustment turn the potentiometer to its extreme counterclockwise position.

[2] Adjust the left and the right channel to the same minimum level.

⬡ Measuring point

◯ Trimming element

# ALIGNMENT LAYOUT: TUNER MODULE



# ALIGNMENT: TUNER MODULE

| SK... WAVE RANGE SWITCH | SIGNAL | TO | DISPLAY TUNE IN | REMARKS DETUNE | ADJUST | OSCILLOSCOPE OR A.C. METER | D.C. METER INDICATOR |
|---|---|---|---|---|---|---|---|
| **FM-RF (Oscillator)** | | | | | | | |
| FM Distant | | | Display 108.00 MHz | | (h) C311 | | (E) 8.5 V = |
| | | | Display 87.50 MHz | | (g) L 306 | | (E) 2.5 V= |
| **FM-IF/T.H.D.** | | | | | | | |
| FM Distant | 108 MHz $U_{RF}$ = 1 mV $f_{mod}$ = 1kHz $\Delta f$ = 75kHz | BU-1 | Display 108.00 MHz | | (i) F 9 | PLUG 6A PIN 1, 3 min. distortion | |
| **FM-RF** | | | | | | | |
| FM Distant | 106 MHz $U_{RF}$ variable below limiting threshold $f_{mod}$ = 1kHz | BU-1 | Display 106.00 MHz | | (b) C 305<br>(d) C 325<br>(e) C 327 | PLUG 6A PIN 1, 3 max. ~ | |
| | 88 MHz $U_{RF}$ variable below limiting threshold $f_{mod}$ = 1kHz | | Display 88.00 MHz | | (a) L 305<br>(c) L 308<br>(f) L 309 | | |
| **FM -SEARCH STOP** | | | | | | | |
| FM Distant | 106 MHz $U_{RF}$ = 15 µV | BU-1 | Display 106.00 MHz | | (A) R 66 | | PLUG 4A PIN 6 0.7 V +0.05 V |
| **FM -STEREO DECODER CROSSTALK** | | | | | | | |
| FM Distant Stereo | 106 MHz L mod. 1kHz | BU-1 | Display 106.00 MHz | | (C) R 69 [1] | PLUG 6A PIN 3 [2] min. ~ | |
| | 106 MHz R mod. 1kHz | | | | | PLUG 6A PIN 1 [2] min. ~ | |

‡ Repeat -Herhalen -Répéter -Wiederholen -Ricominciare -Repetera -Gentage -Gjentagelse -Toista

| SK... WAVE RANGE SWITCH | SIGNAL | TO | DISPLAY TUNE IN | REMARKS DETUNE | ADJUST | OSCILLOSCOPE OR A.C. METER | D.C. METER INDICATOR |
|---|---|---|---|---|---|---|---|

**ADJACENT CHANNEL FILTER**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FM Distant Stereo Mute off | 114 kHz approx. 100 mV | F 15 PIN 2 | | | (D) F 15 | F 15 PIN 4 min. ~ | |

**FM -PILOT -FILTERS**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FM Distant | 106 MHz $U_{RF}$ = 1 mV $f_{mod}$ = 19 kHz | BU-1 | Display 106 MHz | NOTE: SET IN MONO | (G) F 12 (H) F 13 | PLUG 6A PIN 1, 3 min. ~ | |
| | 106 MHz $U_{RF}$ = 1 mV $f_{mod}$ = 38 kHz | | | | (E) F 12 (F) F 13 | PLUG 6A PIN 1, 3 min. ~ | |

**RDS - DEMODULATOR**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FM Distant | 106 MHz $U_{RF}$ = 1 mV 56.4kHz±50Hz mod Δf 2 - 3 kHz | BU-1 | Display 106 MHz | | (m) L 300 | IC 302 PIN 5 max. ~ | |
| | 106 MHz $U_{RF}$ = 1 mV 57.7kHz±50Hz mod Δf 2 - 3 kHz | | | | (n) L 301 | | |

**AM-RF (Oscillator)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MW | | | Display 531 kHz | | (VI) L 4 | | (E) 1,1 V = |
| LW | | | Display 153 kHz | | (V) L 3 | | (E) 1,8 V = |

**AM-RF-IF**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MW | 1449 kHz 1 kHz mod. m=30 % | (B) | Display 1449 kHz | | (IV) (VII) C 2 F 8 | PLUG 6A PIN 1, 3 max. ~ | |
| | 558 kHz 1 kHz mod. m=30 % | | Display 558 kHz | | (III) L 1 | | |
| LW | 261 kHz 1 kHz mod. m=30 % | | Display 261 kHz | | (II) C 1 | | |
| | 162 kHz 1 kHz mod. m=30 % | | Display 162 kHz | | (I) L 2 | | |

↕ Repeat -Herhalen -Répéter -Wiederholen -Ricomminciare -Repetera -Gentage -Gjentagelse -Toista

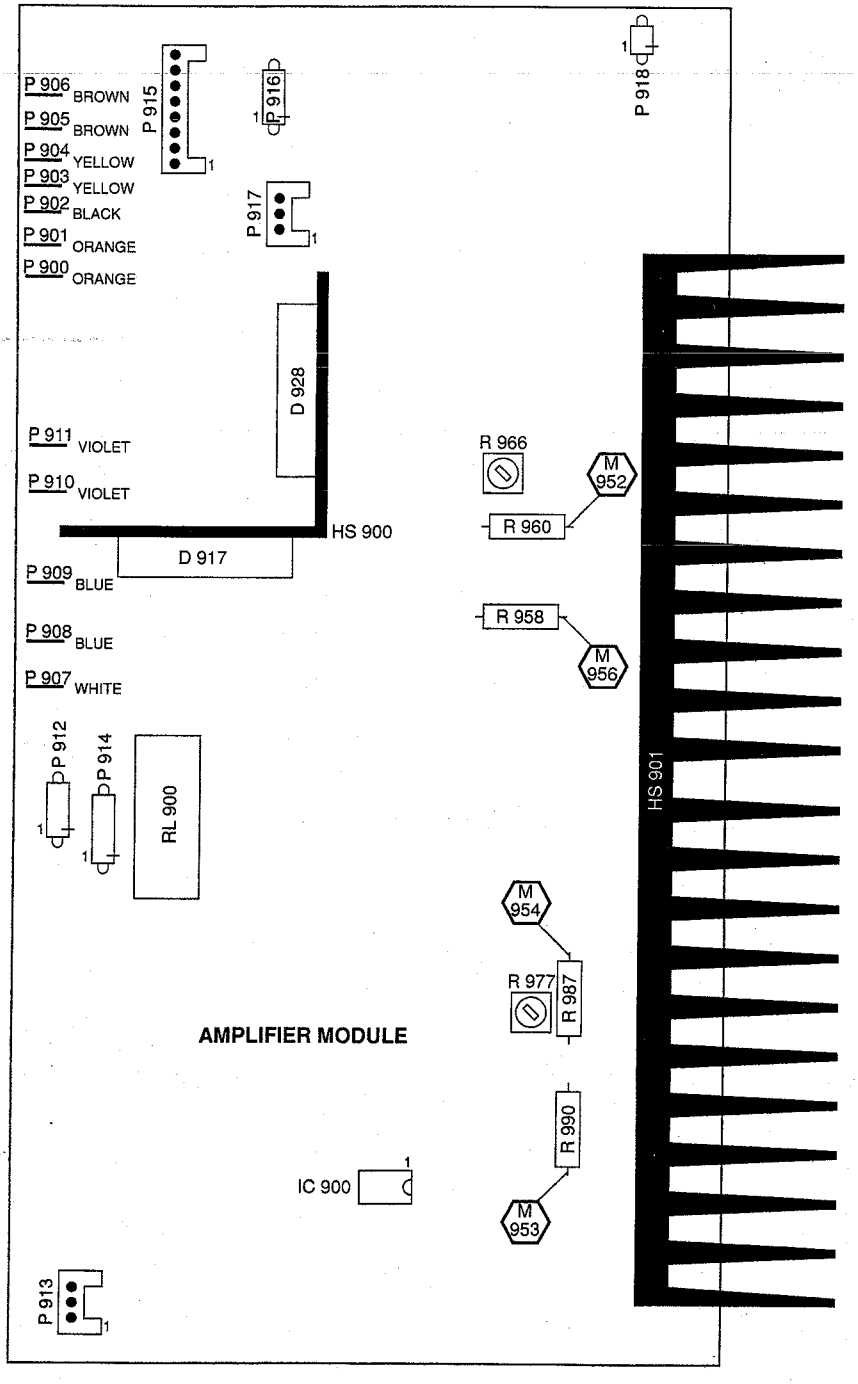
# ALIGNMENT AND ALIGNMENT LAYOUT: AMPLIFIER MODULE

| SK...<br>SWITCH | SIGNAL | TO | VOLUME | ADJUST | OSCILLOSCOPE | D.C. METER<br>INDICATOR |
|---|---|---|---|---|---|---|

**IDLING CURRENT**

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | min. | Lch<br>R 977 | | Lch<br>M953 (+) ↔ M954 (-)<br>DC 6 mV<br>(20 mA) |
| | | | | Rch<br>R 966 | | Rch<br>M956 (+) ↔ M952 (-)<br>DC 6 mV<br>(20 mA) |

**ALIGNMENT LAYOUT**



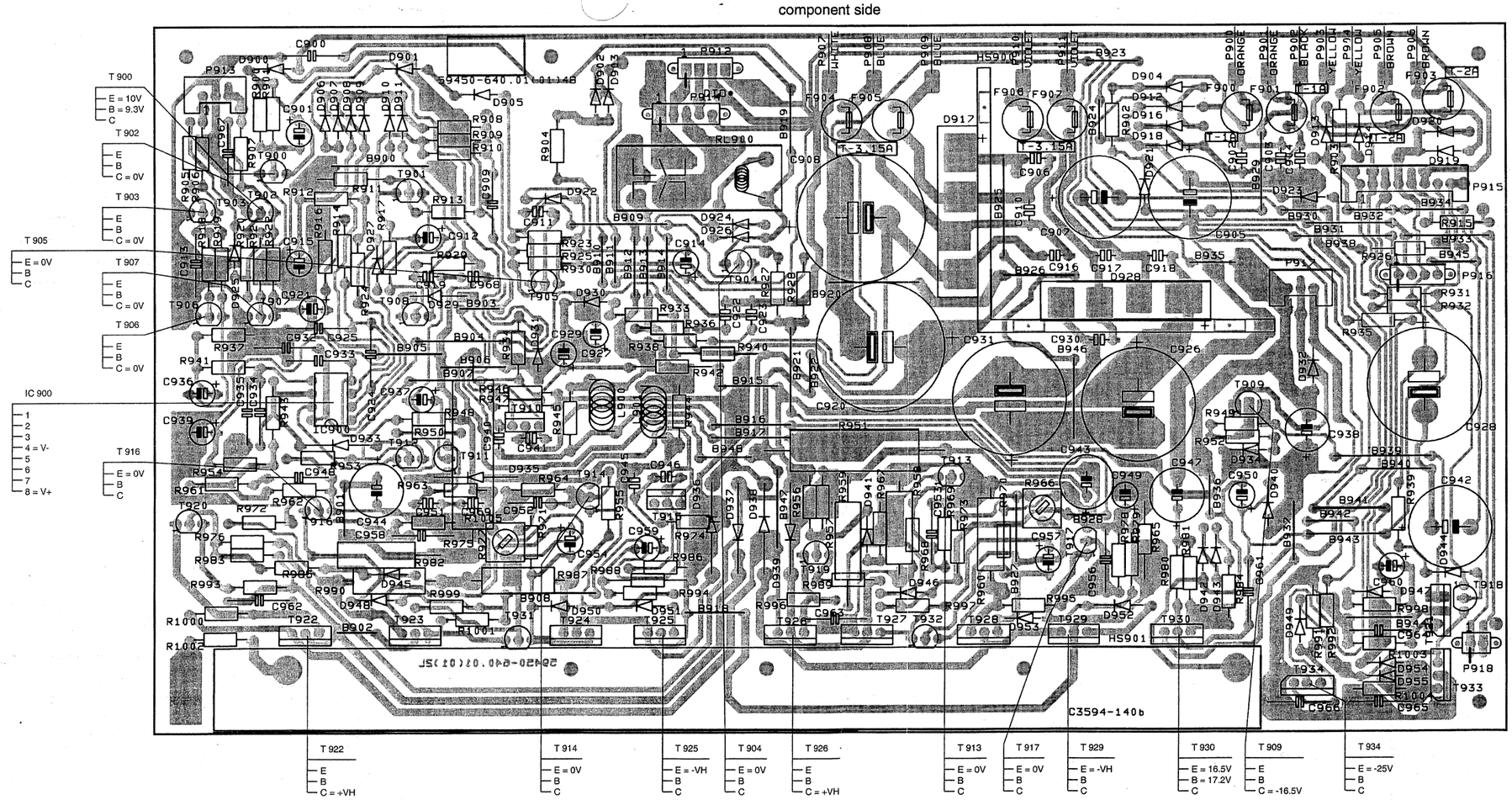

CS 33 071

# AMPLIFIER PCB, RC5 SOCKET PCB, HEADPHONE SOCKET PCB, LOUDSPEAKER CONNECTION PCB, MAIN SWITCH PCB, TRANSFORMER

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C 500 | F 14 | C 912 | E 2 | C 927 | D 3 | C 942 | C 9 | C 958 | C 2 | D 903 | F 3 | D 919 | E 9 | D 934 | C 8 | D 949 | B 8 | HS 900 | F 6 | P 904 | F 8 | R 1000 | B 1 | R 903 | E 8 | R 918 | E 1 | R 933 | D 4 | R 948 | D 2 | R 963 | C 2 | R 978 | C 7 | R 993 | B 1 | T 905 | D 3 | T 920 | C 1 |
| C 800 | G 16 | C 913 | E 1 | C 928 | D 9 | C 943 | C 6 | C 959 | C 4 | D 904 | F 7 | D 920 | E 9 | D 935 | C 3 | D 950 | B 3 | HS 901 | B 7 | P 905 | F 8 | R 1001 | B 3 | R 904 | E 3 | R 919 | E 1 | R 934 | D 3 | R 949 | C 8 | R 964 | C 3 | R 979 | C 7 | R 994 | B 4 | T 906 | D 1 | T 921 | B 9 |
| C 801 | G 16 | C 914 | E 4 | C 929 | D 3 | C 944 | C 2 | C 960 | C 8 | D 905 | F 3 | D 921 | E 7 | D 936 | C 4 | D 951 | B 4 | IC 900 | D 2 | P 906 | F 9 | R 1002 | B 1 | R 905 | E 1 | R 920 | E 1 | R 935 | D 8 | R 950 | C 2 | R 965 | C 7 | R 980 | C 7 | R 995 | B 6 | T 907 | D 1 | T 922 | B 1 |
| C 900 | F 1 | C 915 | E 1 | C 930 | D 7 | C 945 | C 4 | C 961 | C 8 | D 906 | E 2 | D 922 | E 3 | D 937 | C 4 | D 952 | B 7 | L 900 | D 3 | P 907 | F 5 | R 1003 | B 8 | R 906 | E 1 | R 921 | E 1 | R 936 | D 4 | R 951 | C 5 | R 966 | C 6 | R 981 | C 7 | R 996 | B 5 | T 908 | D 2 | T 923 | B 2 |
| C 901 | E 1 | C 916 | E 6 | C 931 | D 6 | C 946 | C 4 | C 962 | B 1 | D 907 | E 2 | D 923 | E 8 | D 938 | C 4 | D 953 | B 6 | L 901 | D 4 | P 908 | F 5 | R 1004 | B 8 | R 907 | E 1 | R 922 | E 1 | R 937 | D 1 | R 952 | C 8 | R 967 | C 5 | R 982 | C 2 | R 997 | B 5 | T 909 | D 8 | T 924 | B 3 |
| C 902 | E 8 | C 917 | E 7 | C 932 | D 1 | C 947 | C 7 | C 963 | B 5 | D 908 | E 2 | D 924 | E 4 | D 939 | C 5 | D 954 | B 8 | P 1000 | E 16 | P 909 | F 6 | R 1005 | C 3 | R 908 | E 2 | R 923 | E 3 | R 938 | D 4 | R 953 | C 2 | R 968 | C 5 | R 983 | C 1 | R 998 | B 8 | T 910 | D 3 | T 925 | B 4 |
| C 903 | E 8 | C 918 | E 7 | C 933 | D 2 | C 948 | C 1 | C 964 | B 8 | D 909 | E 2 | D 925 | E 1 | D 940 | C 8 | D 955 | B 8 | P 1001 | E 16 | P 910 | F 6 | R 500 | G 11 | R 909 | E 2 | R 924 | D 2 | R 939 | C 9 | R 954 | C 1 | R 969 | C 6 | R 984 | B 7 | R 999 | B 2 | T 911 | C 2 | T 926 | B 5 |
| C 904 | E 8 | C 919 | D 2 | C 934 | D 1 | C 949 | C 7 | C 965 | B 8 | D 910 | E 2 | D 926 | E 4 | D 941 | C 5 | F 900 | E 8 | P 600 | C 16 | P 911 | F 6 | R 501 | G 11 | R 910 | E 2 | R 925 | E 3 | R 940 | D 4 | R 955 | C 3 | R 970 | C 6 | R 985 | C 1 | RL 900 | E 4 | T 912 | C 2 | T 927 | B 5 |
| C 905 | E 7 | C 920 | D 5 | C 935 | D 1 | C 950 | C 8 | C 966 | B 8 | D 911 | E 2 | D 927 | E 2 | D 942 | C 7 | F 901 | E 8 | P 601 | A 16 | P 912 | F 4 | R 600 | B 17 | R 911 | E 2 | R 926 | E 9 | R 941 | D 1 | R 956 | C 5 | R 971 | C 3 | R 986 | C 4 | SW 500 | F 11 | T 913 | C 6 | T 928 | B 6 |
| C 906 | E 6 | C 921 | D 1 | C 936 | D 1 | C 951 | C 2 | C 967 | E 1 | D 912 | F 7 | D 928 | D 7 | D 943 | C 7 | F 902 | E 8 | P 800 | G 16 | P 913 | F 1 | R 601 | B 16 | R 912 | E 2 | R 927 | D 4 | R 942 | D 4 | R 957 | C 5 | R 972 | C 1 | R 987 | C 4 | SW 501 | G 14 | T 914 | C 3 | T 929 | B 6 |
| C 907 | E 7 | C 922 | D 4 | C 937 | D 2 | C 952 | C 3 | C 968 | D 3 | D 913 | E 8 | D 929 | D 2 | D 944 | C 9 | F 903 | F 9 | P 801 | G 16 | P 914 | F 4 | R 602 | B 16 | R 913 | E 2 | R 928 | D 5 | R 943 | D 1 | R 958 | C 5 | R 973 | C 6 | R 988 | C 4 | T 900 | E 1 | T 915 | C 4 | T 930 | B 7 |
| C 908 | E 5 | C 923 | D 4 | C 938 | C 8 | C 953 | C 6 | C 969 | C 3 | D 914 | E 8 | D 930 | D 3 | D 945 | C 2 | F 904 | E 5 | P 900 | F 7 | P 915 | E 9 | R 603 | B 16 | R 914 | E 2 | R 929 | E 2 | R 944 | D 4 | R 959 | C 5 | R 974 | C 4 | R 989 | B 5 | T 901 | E 2 | T 916 | C 2 | T 931 | B 3 |
| C 909 | E 3 | C 924 | D 2 | C 939 | C 1 | C 954 | C 3 | D 900 | F 1 | D 916 | E 7 | D 931 | D 3 | D 946 | B 5 | F 905 | E 5 | P 901 | F 8 | P 916 | D 9 | R 900 | F 1 | R 915 | E 9 | R 930 | E 3 | R 945 | D 3 | R 960 | C 6 | R 975 | C 3 | R 990 | B 2 | T 902 | E 1 | T 917 | C 6 | T 932 | B 5 |
| C 910 | E 6 | C 925 | D 2 | C 940 | C 3 | C 956 | C 7 | D 901 | F 2 | D 917 | E 6 | D 932 | D 8 | D 947 | B 8 | F 906 | E 6 | P 902 | F 8 | P 917 | D 8 | R 901 | F 1 | R 916 | E 2 | R 931 | D 9 | R 946 | D 3 | R 961 | C 1 | R 976 | C 1 | R 991 | B 8 | T 903 | E 1 | T 918 | B 9 | T 933 | B 9 |
| C 911 | E 3 | C 926 | D 7 | C 941 | C 3 | C 957 | C 6 | D 902 | F 3 | D 918 | E 7 | D 933 | C 2 | D 948 | B 2 | F 907 | E 6 | P 903 | F 8 | P 918 | B 9 | R 902 | E 7 | R 917 | E 2 | R 932 | D 9 | R 947 | D 3 | R 962 | C 1 | R 977 | C 3 | R 992 | B 8 | T 904 | D 4 | T 919 | C 5 | T 934 | B 8 |

## AMPLIFIER PCB

component side

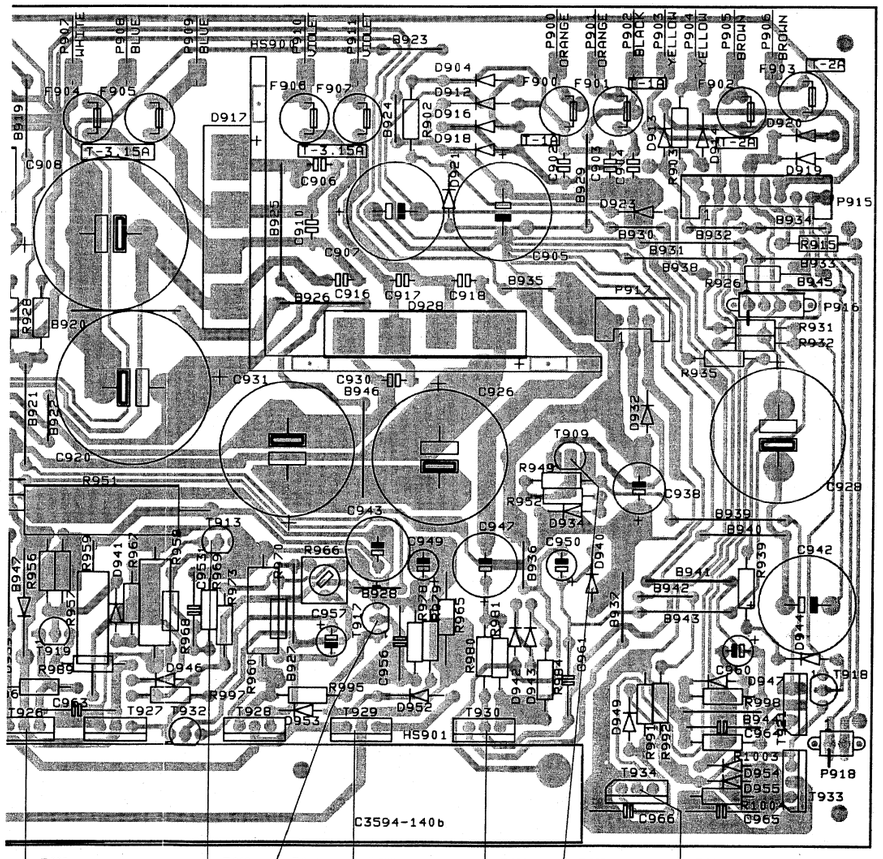


# ER CONNECTION PCB, MAIN SWITCH PCB, TRANSFORMER

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | P 904 | F 8 | R 1000 | B 1 | R 903 | E 8 | R 918 | E 1 | R 933 | D 4 | R 948 | D 2 | R 963 | C 2 | R 978 | C 7 | R 993 | B 1 | T 905 | D 3 | T 920 | C 1 |
| | P 905 | F 8 | R 1001 | B 3 | R 904 | E 3 | R 919 | E 1 | R 934 | D 3 | R 949 | C 8 | R 964 | C 3 | R 979 | C 7 | R 994 | B 4 | T 906 | D 1 | T 921 | B 9 |
| | P 906 | F 9 | R 1002 | B 1 | R 905 | E 1 | R 920 | E 1 | R 935 | D 8 | R 950 | C 2 | R 965 | C 7 | R 980 | C 7 | R 995 | B 6 | T 907 | D 1 | T 922 | B 1 |
| | P 907 | F 5 | R 1003 | B 8 | R 906 | E 1 | R 921 | E 1 | R 936 | D 4 | R 951 | C 5 | R 966 | C 6 | R 981 | C 7 | R 996 | B 5 | T 908 | D 2 | T 923 | B 2 |
| | P 908 | F 5 | R 1004 | B 8 | R 907 | E 1 | R 922 | E 1 | R 937 | D 1 | R 952 | C 8 | R 967 | C 5 | R 982 | C 2 | R 997 | B 5 | T 909 | D 8 | T 924 | B 3 |
| 16 | P 909 | F 6 | R 1005 | C 3 | R 908 | E 2 | R 923 | E 3 | R 938 | D 4 | R 953 | C 2 | R 968 | C 5 | R 983 | C 1 | R 998 | B 8 | T 910 | D 3 | T 925 | B 4 |
| 16 | P 910 | F 6 | R 500 | G 11 | R 909 | E 2 | R 924 | D 2 | R 939 | C 9 | R 954 | C 1 | R 969 | C 6 | R 984 | B 7 | R 999 | B 2 | T 911 | C 2 | T 926 | B 5 |
| 16 | P 911 | F 6 | R 501 | G 11 | R 910 | E 2 | R 925 | E 3 | R 940 | D 4 | R 955 | C 3 | R 970 | C 6 | R 985 | C 1 | RL 900 | E 4 | T 912 | C 2 | T 927 | B 5 |
| 6 | P 912 | F 4 | R 600 | B 17 | R 911 | E 2 | R 926 | E 9 | R 941 | D 1 | R 956 | C 5 | R 971 | C 3 | R 986 | C 4 | SW 500 | F 11 | T 913 | C 6 | T 928 | B 6 |
| 16 | P 913 | F 1 | R 601 | B 16 | R 912 | E 2 | R 927 | D 4 | R 942 | D 4 | R 957 | C 5 | R 972 | C 1 | R 987 | C 3 | SW 501 | G 14 | T 914 | C 3 | T 929 | B 6 |
| 16 | P 914 | F 4 | R 602 | B 16 | R 913 | E 2 | R 928 | D 5 | R 943 | D 1 | R 958 | C 5 | R 973 | C 6 | R 988 | C 4 | T 900 | E 1 | T 915 | C 4 | T 930 | B 7 |
| | P 915 | E 9 | R 603 | B 16 | R 914 | E 2 | R 929 | E 2 | R 944 | D 4 | R 959 | C 5 | R 974 | C 4 | R 989 | B 5 | T 901 | E 2 | T 916 | C 2 | T 931 | B 3 |
| | P 916 | D 9 | R 900 | F 1 | R 915 | E 9 | R 930 | E 3 | R 945 | D 3 | R 960 | C 6 | R 975 | C 3 | R 990 | B 2 | T 902 | E 1 | T 917 | C 6 | T 932 | B 5 |
| | P 917 | D 8 | R 901 | F 1 | R 916 | E 2 | R 931 | D 9 | R 946 | D 3 | R 961 | C 1 | R 976 | C 1 | R 991 | B 8 | T 903 | E 1 | T 918 | B 9 | T 933 | B 9 |
| | P 918 | B 9 | R 902 | E 7 | R 917 | E 2 | R 932 | D 9 | R 947 | D 3 | R 962 | C 1 | R 977 | C 3 | R 992 | B 8 | T 904 | D 4 | T 919 | C 5 | T 934 | B 8 |

## PLIFIER PCB

component side




T 926
E
B
C = +VH

T 913
E = 0V
B
C

T 917
E = 0V
B
C

T 929
E = -VH
B
C

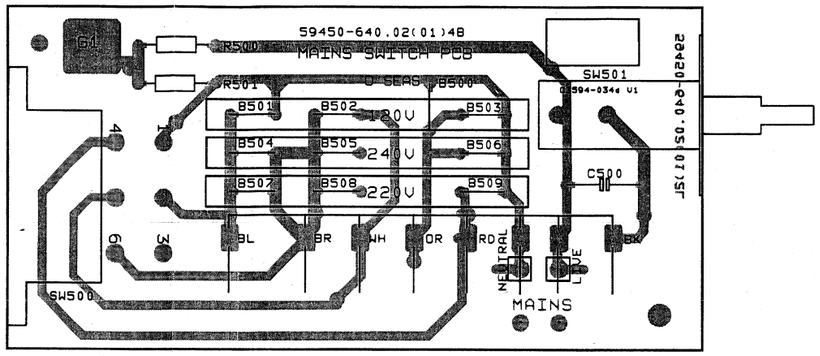
T 930
E = 16.5V
B = 17.2V
C

T 909
E
B
C = -16.5V

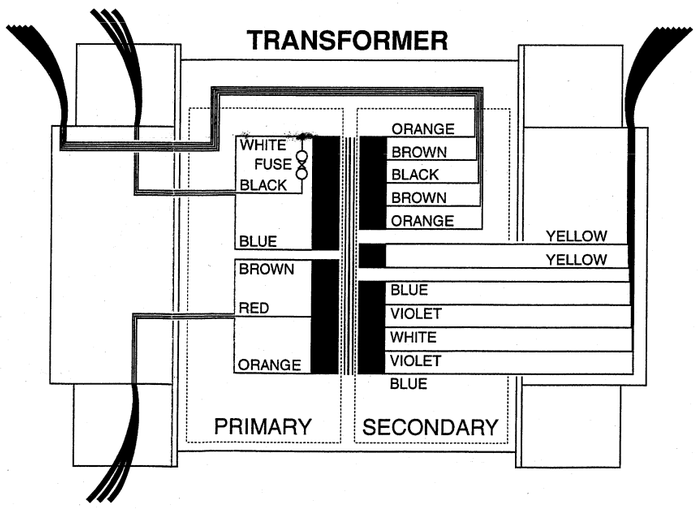
T 934
E = -25V
B
C

## MAIN SWITCH PCB

component side

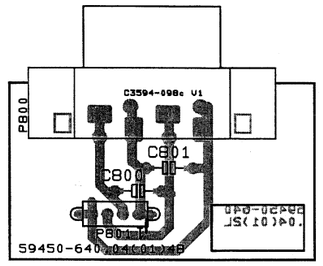



## TRANSFORMER



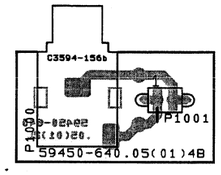

## LOUDSPEAKER CONNECTION PCB

component side



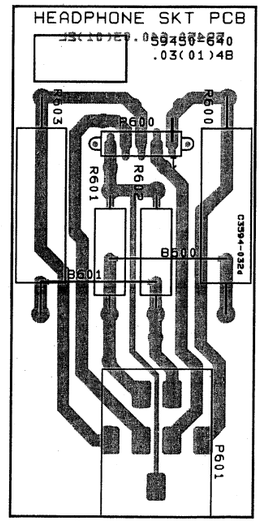

## RC5 SOCKET PCB

component side

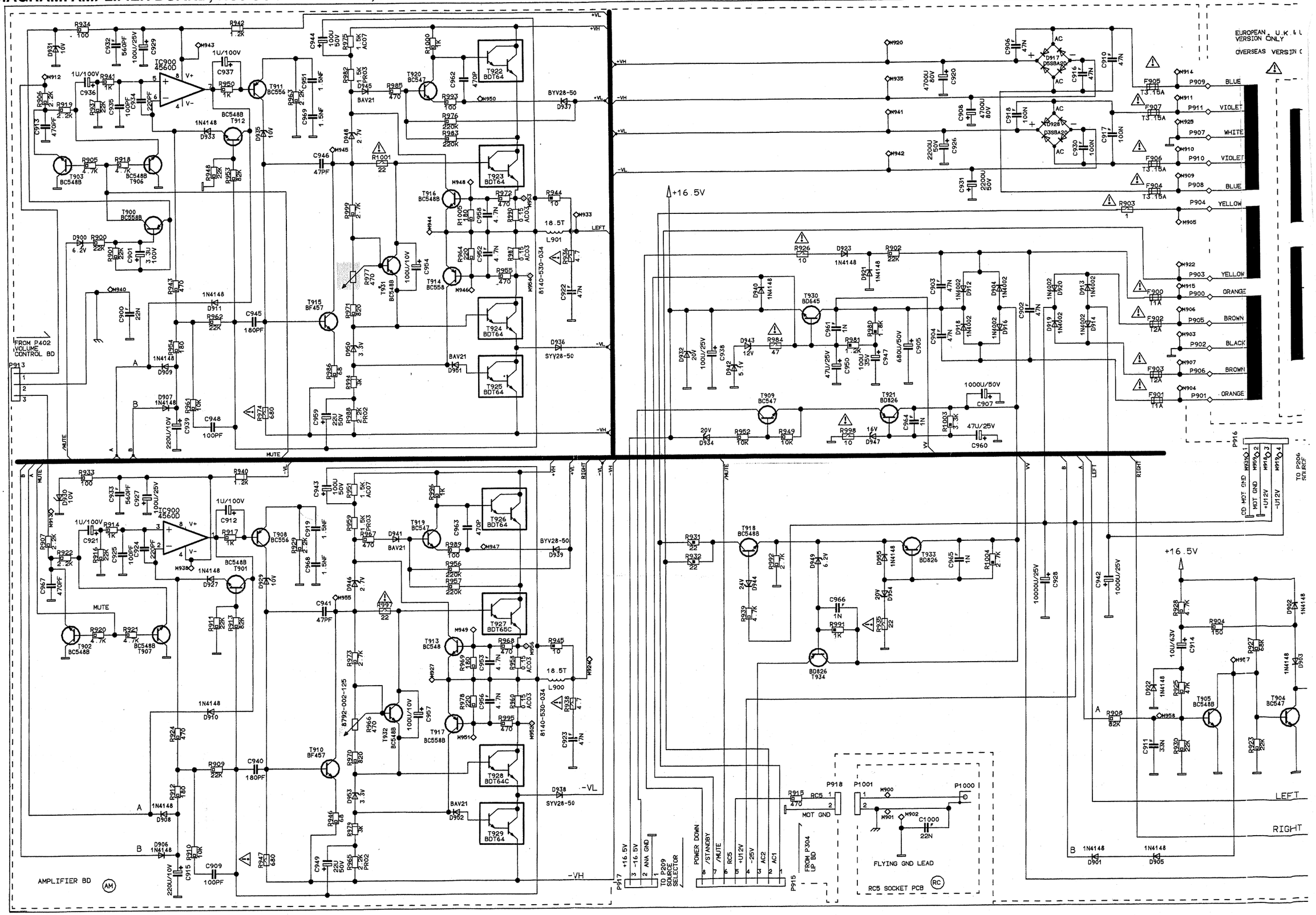



## HEADPHONE SOCKET PCB

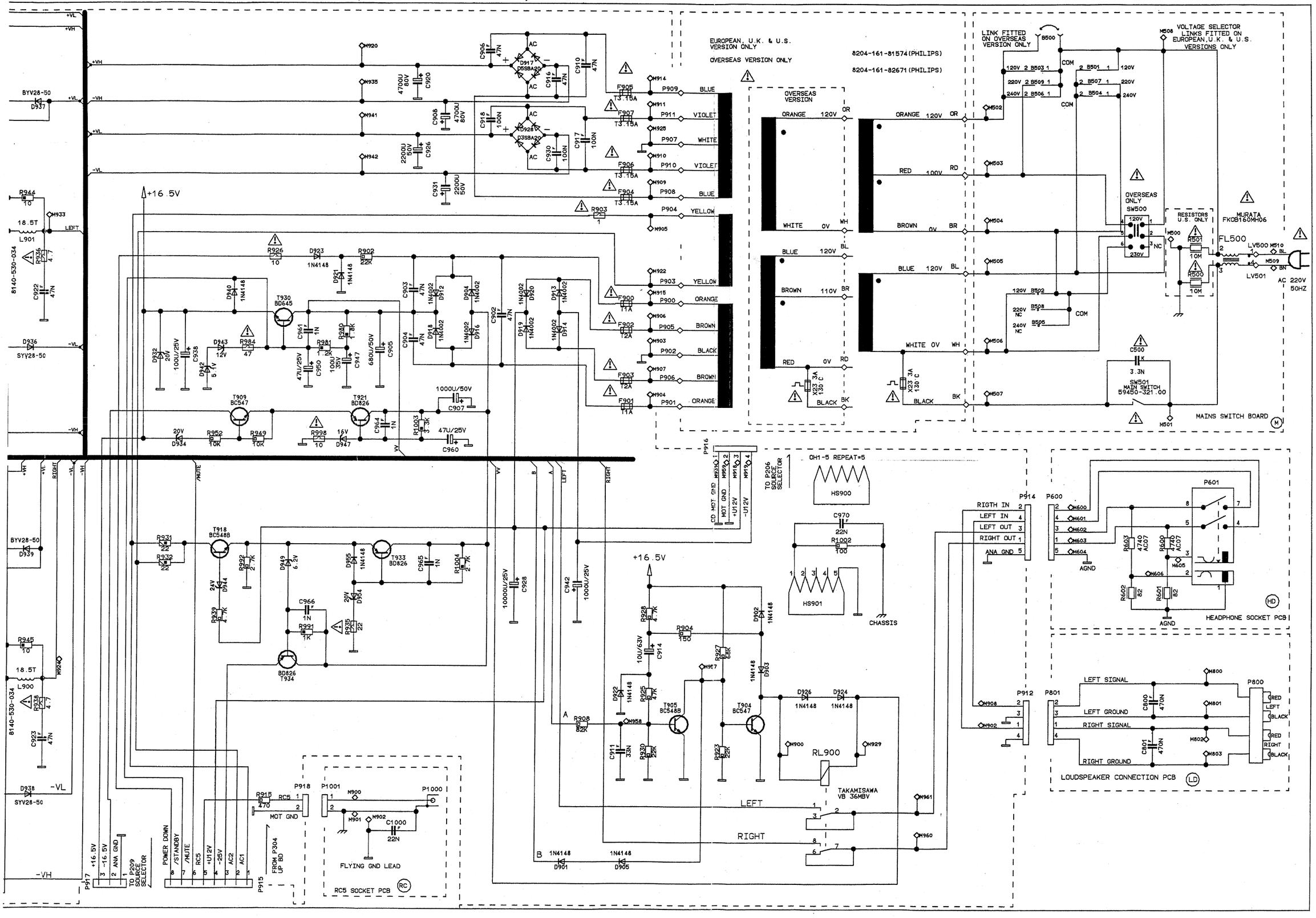
component side



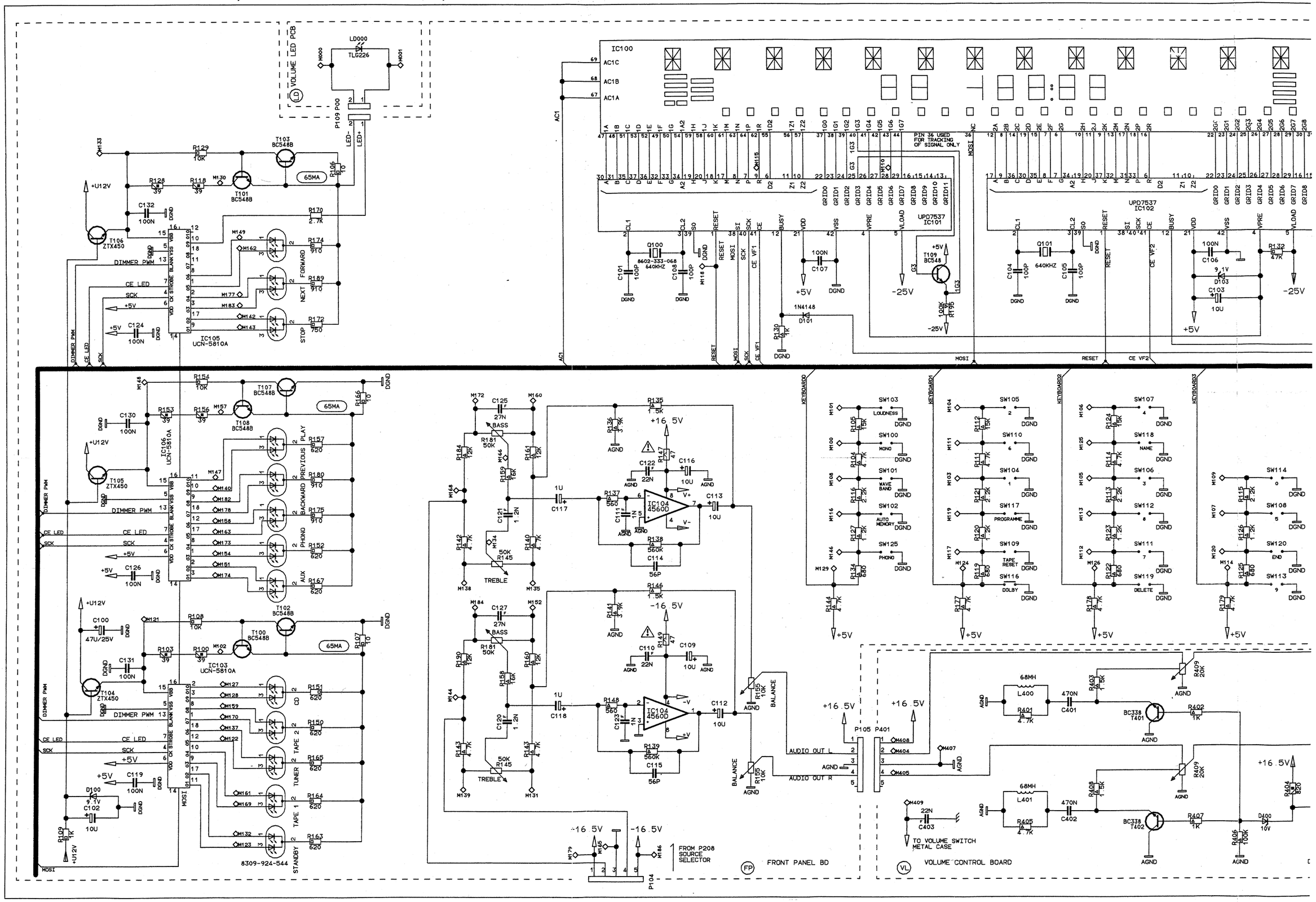
# CIRCUIT DIAGRAM: AMPLIFIER BOARD, RC5 SOCKET BOARD, HEADPHONE SOCKET BOARD, LOUDSPEAKER CONNECTION BOARD, MAIN SWITCH BOARD, TRANSFORMER



# T BOARD, LOUDSPEAKER CONNECTION BOARD, MAIN SWITCH BOARD, TRANSFORMER



# CIRCUIT DIAGRAM: FRONT PANEL BOARD, VOLUME CONTROL BOARD, VOLUME LED BOARD



## LED BOARD

IC100
UPD7537
IC101
UPD7537
IC102
IC104
4560D
IC104
4560D
Q100
8602-333-068
640KHZ
Q101
640KHZ
T109
BC548
D101
1N4148
D102
1N4148
D103
9.1V
C103
10U
C106
100N
C107
100N
R132
47K
R133
1K
R131
100K
R130
1K
R134
680
R135
15K
R136
3.9K
R137
560
R138
560K
R139
560K
R140
4.7K
R141
3.9K
R143
4.7K
R144
4.7K
R146
15K
R147
47
R148
560
R149
47
R155
10K
R195
10K
R193
47
R192
47
C101
100P
C104
100P
C105
100P
C108
100P
C109
10U
C110
22N
C111
1N
C112
10U
C113
10U
C114
56P
C115
56P
C116
10U
C117
1U
C118
1U
C122
22N
C123
1N
C127
1N
C128
47U
P108
P103
P100
P402
P105
P401
P400
P104
TO P700
INFRA-RED BD
FROM P307
MP BD
FROM P308
MP BD
TO P913
POWER
AMPLIFIER
TO P303
MP BD
FROM P208
SOURCE
SELECTOR
FRONT PANEL BD
VOLUME CONTROL BOARD
TO VOLUME SWITCH
METAL CASE
SW103
LOUDNESS
SW100
MONO
SW101
WAVE
BAND
SW102
AUTO
MEMORY
SW125
PHONO
SW105
SW110
SW104
SW117
PROGRAMME
SW109
TAPE
RESET
SW116
DOLBY
SW107
SW118
NAME
SW106
SW112
SW111
SW119
DELETE
SW114
SW108
SW120
END
SW113
SW128
AUX
SW124
CD
SW127
TAPE 2
SW123
TUNER
SW126
TAPE 1
SW122
STANDBY
SW134
FORWARD
SW133
NEXT
SW129
PLAY
SW130
BACKWARD
SW131
PREVIOUS
SW132
STOP
L400
68MH
L401
68MH
R400
1K
R401
4.7K
R402
1K
R403
1.5K
R404
820
R405
4.7K
R406
100K
R407
1K
R408
1.5K
R409
20K
C400
470N
C401
470N
C402
470N
C403
22N
T400
BC550C
T401
BC338
T402
BC338
D400
10V
PIN 36 USED
FOR TRACKING
OR SIGNAL ONLY
+16.5V
-16.5V
+5V
-25V
+U12V
AGND
DGND

**BLOCK DIAGRAM**
**IC 101, 102 µPD7537A**
**IC 103, 105, 106 UCN-5810A**
**PAGE 44**

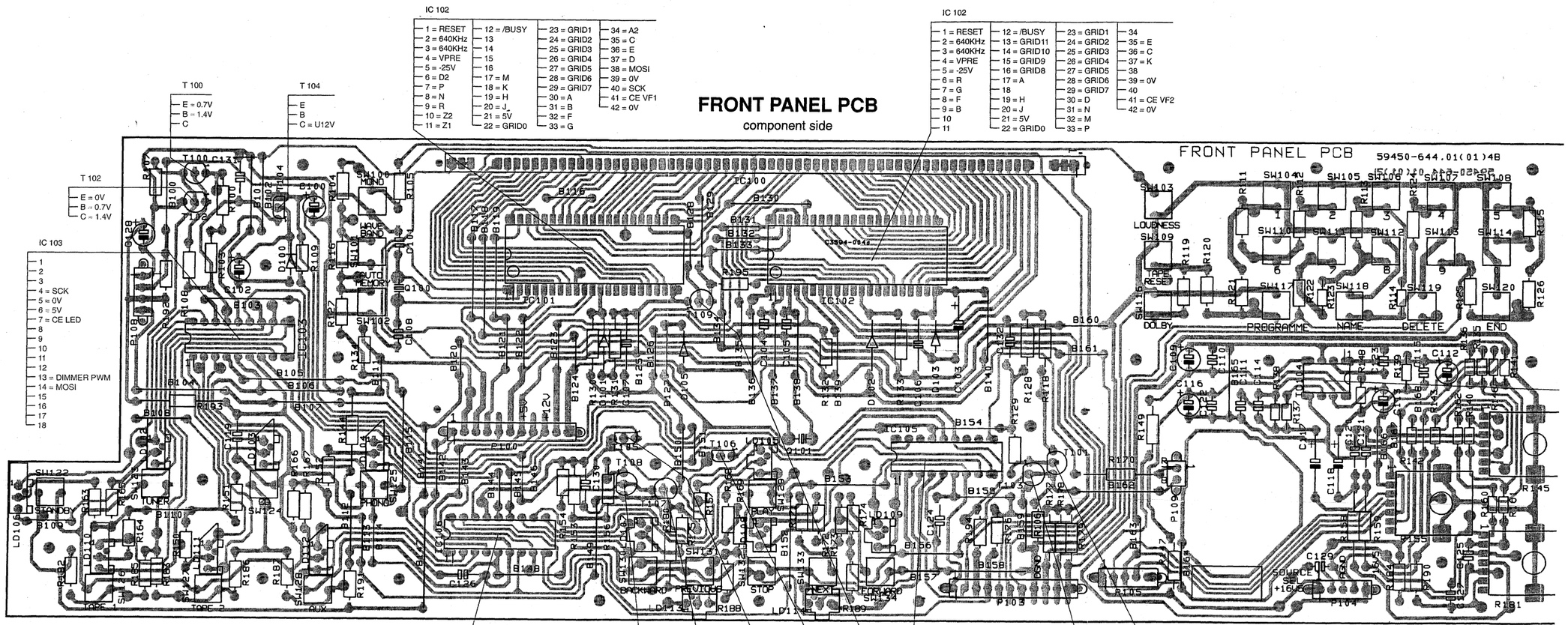
# FRONT PANEL PCB, VOLUME CONTROL PCB, VOLUME LED PCB

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C 100 | D 3 | C 115 | B 11 | C 130 | B 5 | IC 101 | C 5 | LD 109 | A 7 | P 400 | C 14 | R 113 | C 10 | R 129 | B 8 | R 144 | B 3 | R 159 | A 10 | R 174 | A 7 | R 189 | A 7 |
| C 101 | C 3 | C 116 | B 9 | C 131 | D 2 | IC 102 | C 7 | LD 110 | A 1 | P 401 | D 14 | R 114 | C 11 | R 130 | B 5 | R 145 | B 12 | R 160 | A 11 | R 175 | A 5 | R 190 | A 11 |
| C 102 | C 2 | C 117 | B 10 | C 132 | C 8 | IC 103 | C 2 | LD 111 | A 2 | P 402 | D 15 | R 115 | C 12 | R 131 | B 5 | R 146 | B 11 | R 161 | A 11 | R 176 | A 8 | R 191 | A 3 |
| C 103 | C 7 | C 118 | B 10 | C 400 | B 15 | IC 104 | B 10 | LD 112 | A 3 | Q 100 | C 3 | R 116 | C 3 | R 132 | B 6 | R 147 | A 9 | R 162 | B 11 | R 177 | A 8 | R 192 | C 2 |
| C 104 | C 6 | C 119 | B 2 | C 401 | D 15 | IC 105 | B 7 | LD 113 | A 6 | Q 101 | B 6 | R 118 | C 8 | R 133 | B 7 | R 148 | B 10 | R 163 | A 1 | R 178 | A 8 | R 193 | B 2 |
| C 105 | C 6 | C 120 | B 10 | C 402 | D 14 | IC 106 | A 4 | LD 114 | A 6 | R 100 | D 2 | R 119 | C 9 | R 134 | B 3 | R 149 | B 9 | R 164 | A 1 | R 179 | A 8 | R 194 | A 8 |
| C 106 | B 7 | C 121 | B 10 | C 403 | D 15 | L 400 | D 15 | M 400 | B 15 | R 103 | C 2 | R 120 | C 9 | R 135 | B 11 | R 150 | A 2 | R 165 | A 1 | R 180 | A 5 | R 195 | C 6 |
| C 107 | B 5 | C 122 | B 9 | C 404 | D 15 | L 401 | D 14 | P 000 | A 14 | R 104 | D 3 | R 121 | C 10 | R 136 | B 11 | R 151 | A 2 | R 166 | A 3 | R 181 | A 12 | R 400 | C 14 |
| C 108 | C 3 | C 123 | B 11 | D 100 | C 3 | LD 102 | B 2 | P 001 | A 14 | R 105 | D 3 | R 122 | C 10 | R 137 | B 10 | R 152 | B 3 | R 167 | A 3 | R 182 | A 1 | R 401 | D 15 |
| C 109 | B 9 | C 124 | A 7 | D 101 | B 5 | LD 103 | B 2 | P 100 | B 4 | R 106 | A 8 | R 123 | C 10 | R 138 | B 10 | R 153 | A 5 | R 168 | A 6 | R 183 | A 2 | R 402 | C 15 |
| C 110 | B 9 | C 125 | A 11 | D 102 | B 7 | LD 104 | B 3 | P 103 | A 8 | R 107 | D 2 | R 124 | C 11 | R 139 | B 11 | R 154 | A 5 | R 169 | A 6 | R 184 | A 11 | R 403 | C 15 |
| C 111 | B 10 | C 126 | A 4 | D 103 | B 7 | LD 105 | B 6 | P 104 | A 10 | R 108 | C 2 | R 125 | C 11 | R 140 | B 11 | R 155 | A 11 | R 170 | B 9 | R 185 | A 1 | R 404 | C 14 |
| C 112 | B 11 | C 127 | A 11 | D 105 | B 5 | LD 106 | A 1 | P 105 | A 9 | R 109 | C 3 | R 126 | C 12 | R 141 | B 11 | R 156 | A 5 | R 171 | A 6 | R 186 | A 2 | R 405 | D 14 |
| C 113 | B 11 | C 128 | C 1 | D 400 | C 14 | LD 107 | A 5 | P 108 | C 1 | R 111 | C 10 | R 127 | C 3 | R 142 | B 11 | R 157 | A 6 | R 172 | A 6 | R 187 | A 3 | R 406 | C 14 |
| C 114 | B 10 | C 129 | A 10 | IC 100 | D 6 | LD 108 | A 6 | P 109 | B 9 | R 112 | C 10 | R 128 | C 8 | R 143 | B 11 | R 158 | A 10 | R 173 | A 7 | R 188 | A 6 | R 407 | C 14 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R 408 | C 14 | SW 113 | C 11 | SW 130 | A 5 | T 400 | C 14 | | | | | | | | | | | | | | | | |
| R 409 | C 15 | SW 114 | C 11 | SW 131 | A 6 | T 401 | D 15 | | | | | | | | | | | | | | | | |
| SW 100 | D 3 | SW 116 | C 9 | SW 132 | A 6 | T 402 | D 14 | | | | | | | | | | | | | | | | |
| SW 101 | C 3 | SW 117 | C 10 | SW 133 | A 6 | | | | | | | | | | | | | | | | | | |
| SW 102 | C 3 | SW 118 | C 10 | SW 134 | A 7 | | | | | | | | | | | | | | | | | | |
| SW 103 | D 9 | SW 119 | C 11 | T 100 | D 2 | | | | | | | | | | | | | | | | | | |
| SW 104 | D 10 | SW 120 | C 11 | T 101 | B 8 | | | | | | | | | | | | | | | | | | |
| SW 105 | D 10 | SW 122 | A 1 | T 102 | D 2 | | | | | | | | | | | | | | | | | | |
| SW 106 | D 11 | SW 123 | A 2 | T 103 | B 8 | | | | | | | | | | | | | | | | | | |
| SW 107 | D 11 | SW 124 | A 2 | T 104 | D 2 | | | | | | | | | | | | | | | | | | |
| SW 108 | D 11 | SW 125 | A 3 | T 105 | B 5 | | | | | | | | | | | | | | | | | | |
| SW 109 | C 9 | SW 126 | A 1 | T 106 | B 6 | | | | | | | | | | | | | | | | | | |
| SW 110 | C 10 | SW 127 | A 2 | T 107 | A 5 | | | | | | | | | | | | | | | | | | |
| SW 111 | C 10 | SW 128 | A 3 | T 108 | B 5 | | | | | | | | | | | | | | | | | | |
| SW 112 | C 11 | SW 129 | A 6 | T 109 | C 6 | | | | | | | | | | | | | | | | | | |

## FRONT PANEL PCB

component side



| 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|

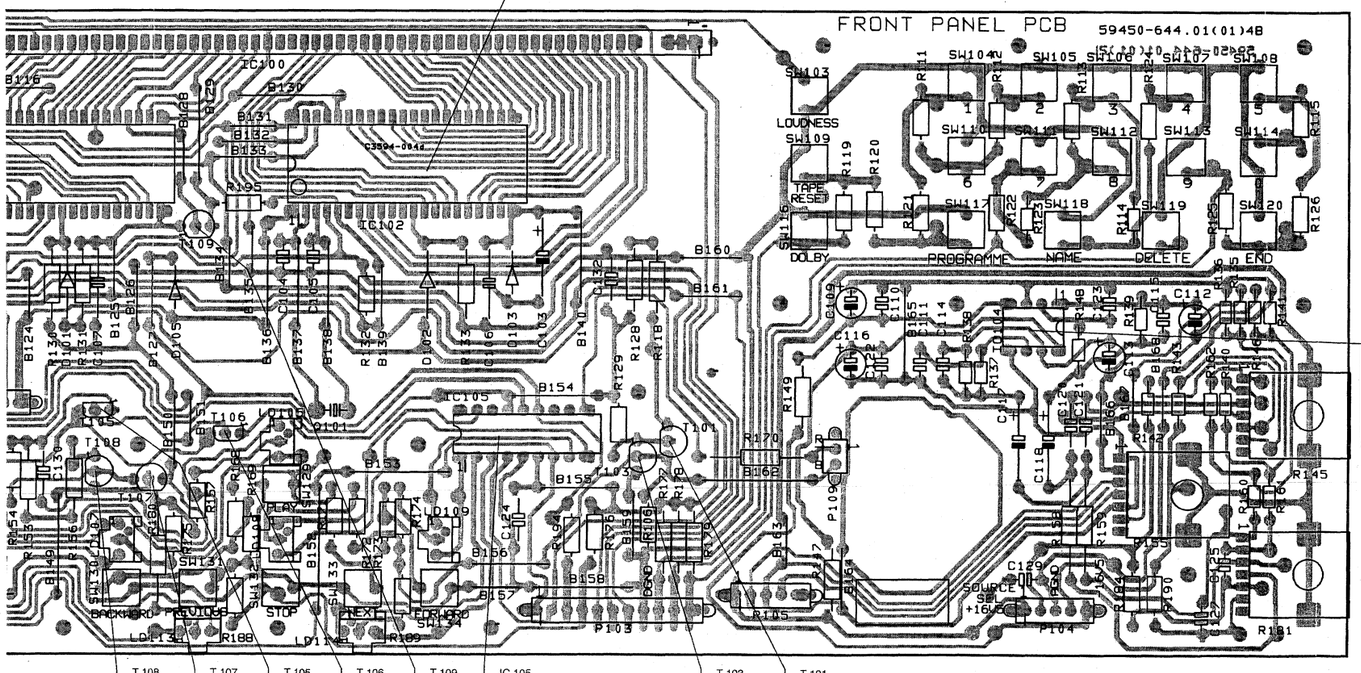
| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A 7 | P 400 | C 14 | R 113 | C 10 | R 129 | B 8 | R 144 | B 3 | R 159 | A 10 | R 174 | A 7 | R 189 | A 7 | R 408 | C 14 | SW 113 | C 11 | SW 130 | A 5 | T 400 | C 14 |
| A 1 | P 401 | D 14 | R 114 | C 11 | R 130 | B 5 | R 145 | B 12 | R 160 | A 11 | R 175 | A 5 | R 190 | A 11 | R 409 | C 15 | SW 114 | C 11 | SW 131 | A 6 | T 401 | D 15 |
| A 2 | P 402 | D 15 | R 115 | C 12 | R 131 | B 5 | R 146 | B 11 | R 161 | A 11 | R 176 | A 8 | R 191 | A 3 | SW 100 | D 3 | SW 116 | C 9 | SW 132 | A 6 | T 402 | D 14 |
| A 3 | Q 100 | C 3 | R 116 | C 3 | R 132 | B 6 | R 147 | A 9 | R 162 | B 11 | R 177 | A 8 | R 192 | C 2 | SW 101 | C 3 | SW 117 | C 10 | SW 133 | A 6 | | |
| A 6 | Q 101 | B 6 | R 118 | C 8 | R 133 | B 7 | R 148 | B 10 | R 163 | A 1 | R 178 | A 8 | R 193 | B 2 | SW 102 | C 3 | SW 118 | C 10 | SW 134 | A 7 | | |
| A 6 | R 100 | D 2 | R 119 | C 9 | R 134 | B 3 | R 149 | B 9 | R 164 | A 1 | R 179 | A 8 | R 194 | A 8 | SW 103 | D 9 | SW 119 | C 11 | T 100 | D 2 | | |
| B 15 | R 103 | C 2 | R 120 | C 9 | R 135 | B 11 | R 150 | A 2 | R 165 | A 1 | R 180 | A 5 | R 195 | C 6 | SW 104 | D 10 | SW 120 | C 11 | T 101 | B 8 | | |
| A 14 | R 104 | D 3 | R 121 | C 10 | R 136 | B 11 | R 151 | A 2 | R 166 | A 3 | R 181 | A 12 | R 400 | C 14 | SW 105 | D 10 | SW 122 | A 1 | T 102 | D 2 | | |
| A 14 | R 105 | D 3 | R 122 | C 10 | R 137 | B 10 | R 152 | B 3 | R 167 | A 3 | R 182 | A 1 | R 401 | D 15 | SW 106 | D 11 | SW 123 | A 2 | T 103 | B 8 | | |
| B 4 | R 106 | A 8 | R 123 | C 10 | R 138 | B 10 | R 153 | A 5 | R 168 | A 6 | R 183 | A 2 | R 402 | C 15 | SW 107 | D 11 | SW 124 | A 2 | T 104 | D 2 | | |
| A 8 | R 107 | D 2 | R 124 | C 11 | R 139 | B 11 | R 154 | A 5 | R 169 | A 6 | R 184 | A 11 | R 403 | C 15 | SW 108 | D 11 | SW 125 | A 3 | T 105 | B 5 | | |
| A 10 | R 108 | C 2 | R 125 | C 11 | R 140 | B 11 | R 155 | A 11 | R 170 | B 9 | R 185 | A 1 | R 404 | C 14 | SW 109 | C 9 | SW 126 | A 1 | T 106 | B 6 | | |
| A 9 | R 109 | C 3 | R 126 | C 12 | R 141 | B 11 | R 156 | A 5 | R 171 | A 6 | R 186 | A 2 | R 405 | D 14 | SW 110 | C 10 | SW 127 | A 2 | T 107 | A 5 | | |
| C 1 | R 111 | C 10 | R 127 | C 3 | R 142 | B 11 | R 157 | A 6 | R 172 | A 6 | R 187 | A 3 | R 406 | C 14 | SW 111 | C 10 | SW 128 | A 3 | T 108 | B 5 | | |
| B 9 | R 112 | C 10 | R 128 | C 8 | R 143 | B 11 | R 158 | A 10 | R 173 | A 7 | R 188 | A 6 | R 407 | C 14 | SW 112 | C 11 | SW 129 | A 6 | T 109 | C 6 | | |

= GRID1 — 34 = A2
= GRID2 — 35 = C
= GRID3 — 36 = E
= GRID4 — 37 = D
= GRID5 — 38 = MOSI
= GRID6 — 39 = 0V
= GRID7 — 40 = SCK
= A — 41 = CE VF1
= B — 42 = 0V
= F
= G

## FRONT PANEL PCB
component side

IC 102

1 = RESET — 12 = /BUSY — 23 = GRID1 — 34
2 = 640KHz — 13 = GRID11 — 24 = GRID2 — 35 = E
3 = 640KHz — 14 = GRID10 — 25 = GRID3 — 36 = C
4 = VPRE — 15 = GRID9 — 26 = GRID4 — 37 = K
5 = -25V — 16 = GRID8 — 27 = GRID5 — 38
6 = R — 17 = A — 28 = GRID6 — 39 = 0V
7 = G — 18 — 29 = GRID7 — 40
8 = F — 19 = H — 30 = D — 41 = CE VF2
9 = B — 20 = J — 31 = N — 42 = 0V
10 — 21 = 5V — 32 = M
11 — 22 = GRID0 — 33 = P




= DIMMER PWM

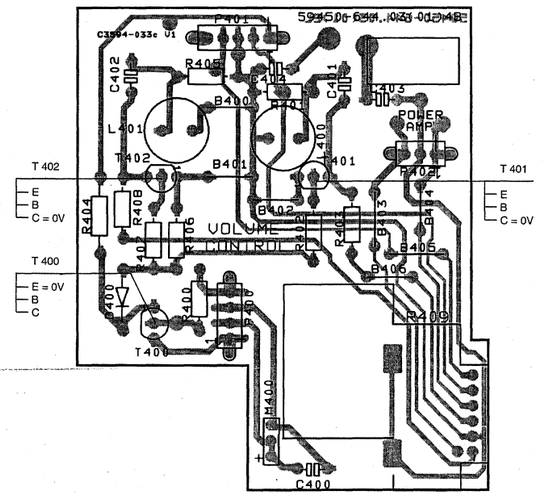
T 108: E = 0.7V, B = 1.4V, C
T 107: E = 0V, B = 0.7V, C = 1.4V
T 105: E, B, C = U12V
T 106: E, B, C = U12V
T 109: E = 5V, B, C

IC 105: 1, 2, 3, 4 = SCK, 5 = 0V, 6 = 5V, 7 = CE LED, 8, 9, 10, 11, 12, 13 = DIMMER PWM, 14, 15, 16, 17, 18

T 103: E = 0V, B = 0.7V, C = 1.4V
T 101: E = 0.7V, B = 1.4V, C

IC 104: 1, 2, 3, 4 = -V, 5, 6, 7, 8 = +V

## VOLUME CONTROL PCB
component side



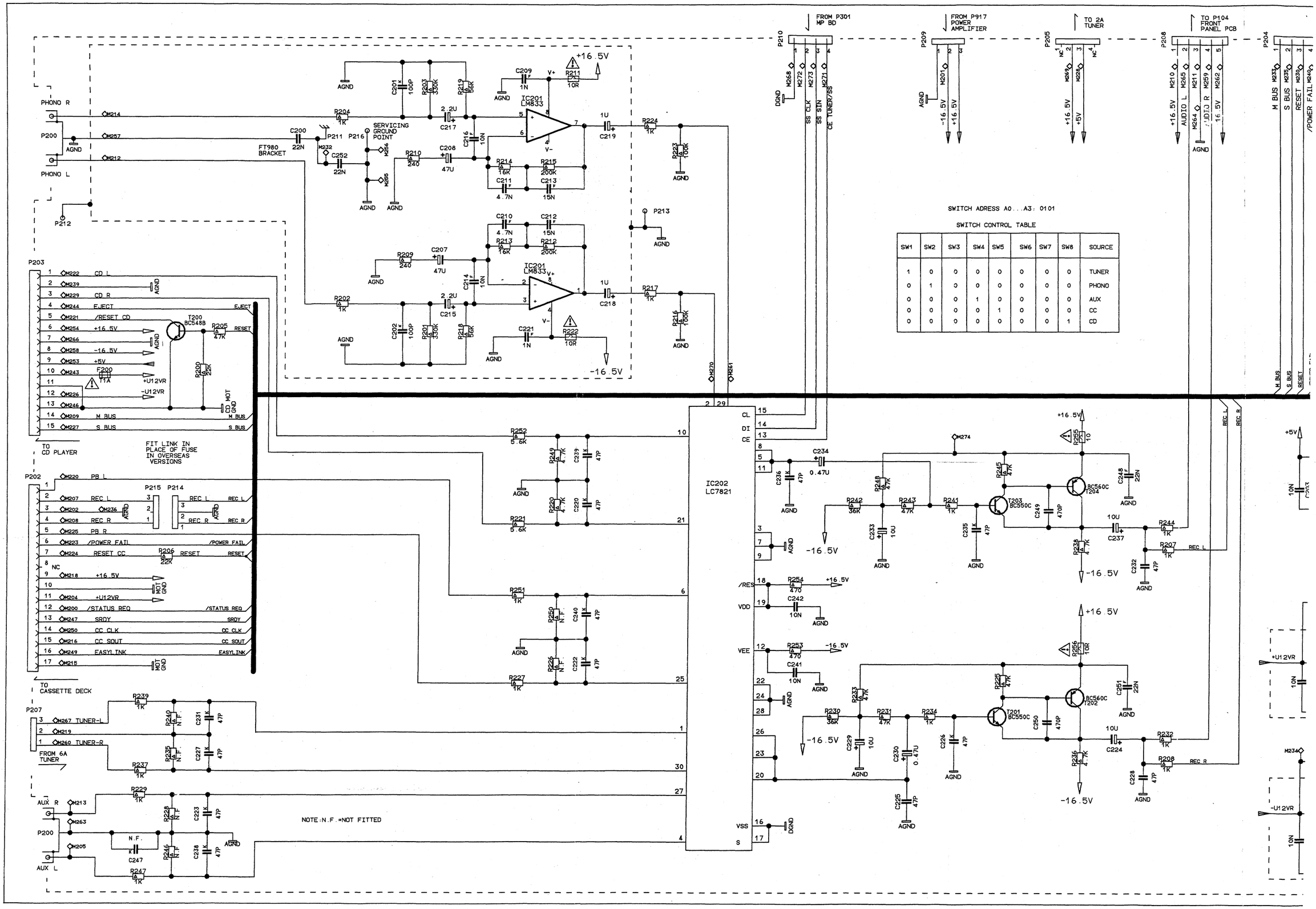

## VOLUME LED PCB
component side

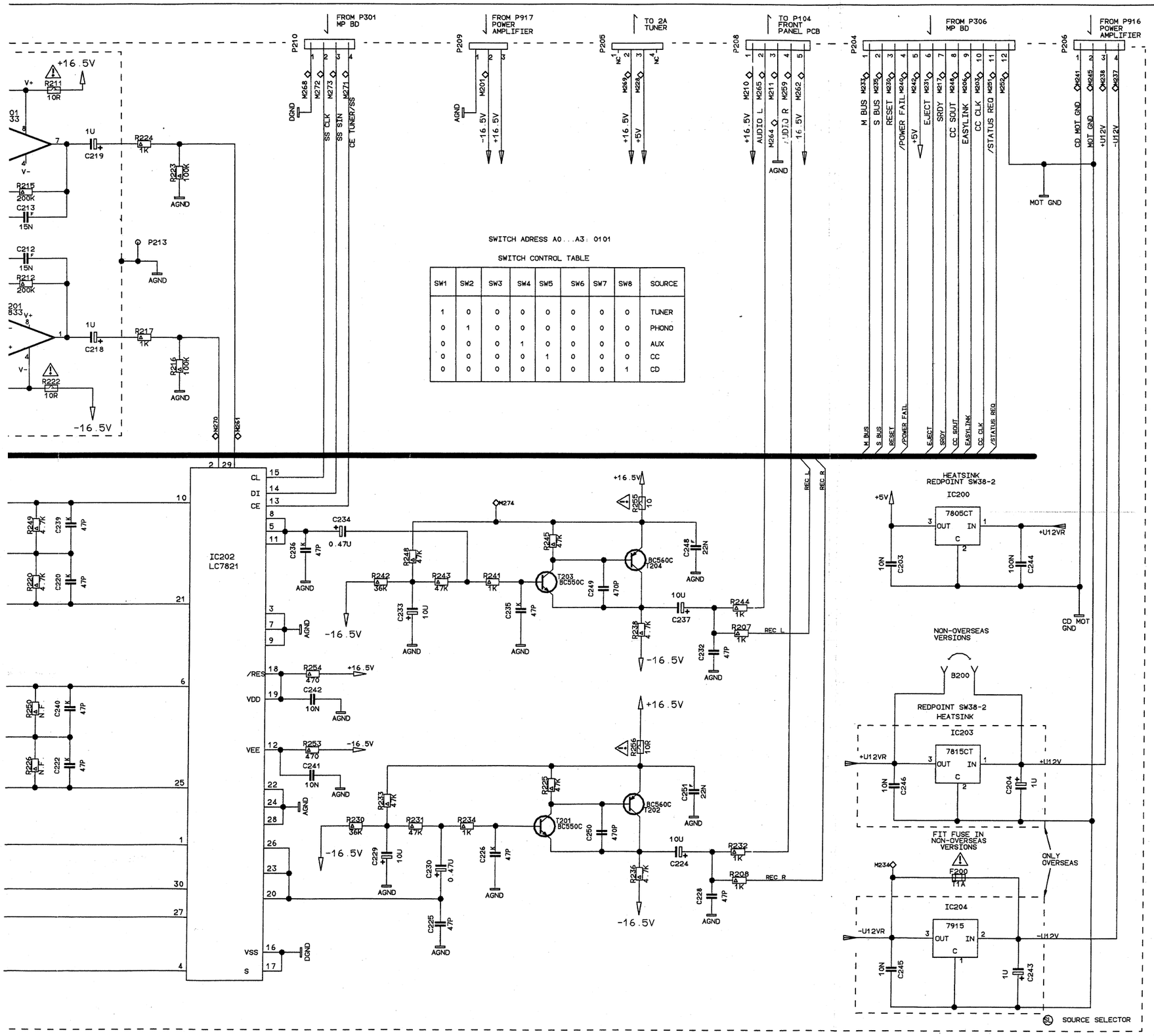
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|

D
C
B
A

CS 33 075

# CIRCUIT DIAGRAM SOURCE SELECTOR BOARD






CR16 0.2W (KSW0204 DIN)
CR37 0.5W (KSW0411 DIN)
SFR16T (MSW0204 DIN)
CR25 0.33W (KSW0207 DIN)
CR52 0.67W (KSW0617 DIN)
SFR25H 0.6W (MSW0207 DIN)

LOW FLAMMABILITY
METAL OXYDE
SAFETY RESISTOR

CAPACITOR

ELECTROLYTIC
CERAMIC
TANTALUM ELECTROLYTIC
MULTILAYER
FOIL
POLYPROPYLEN (KS-KP)

IF NOT OTHERWISE INDICATED ALL VOLTAGES ARE MEASURED AGAINST CHASSIS WITH A VOLTMETER (RI=10M ). THE VALUES ARE VALID FOR 220V AC MAINS VOLTAGES.

ATTENTION!
OBSERVE MOS COMPONENTS HANDLING INSTRUCTIONS WHEN SERVICING!

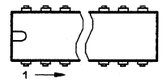
ABSOLUTELY NECESSARY FOR THE SAFETY OF THE SET. THESE COMPONENTS MEET THE SAFETY REQUIREMENTS ACCORDING TO VDE OR IEC. RESP. AND MUST BE REPLACED BY PARTS OF SAME SPECIFICATION ONLY.

MEASUREMENT POINT

ALIGNMENT POINT

BC550
BC548
BC558

BC640
BC638



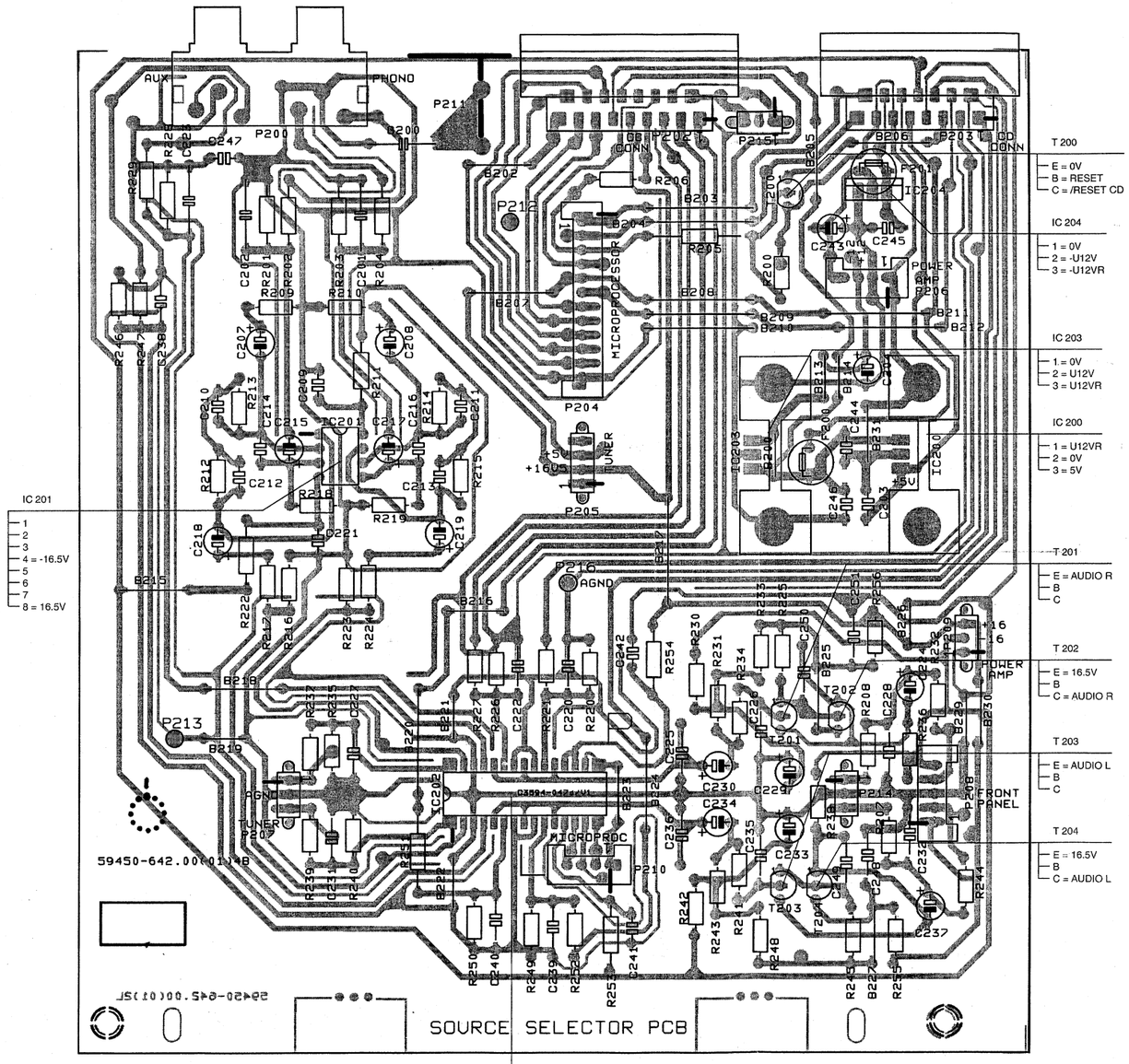

LM833 MOS
LM358 MOS
4966 MOS
M50726 MOS
LC7520 MOS
TA8135 MOS
LC7565 MOS

TOP VIEW

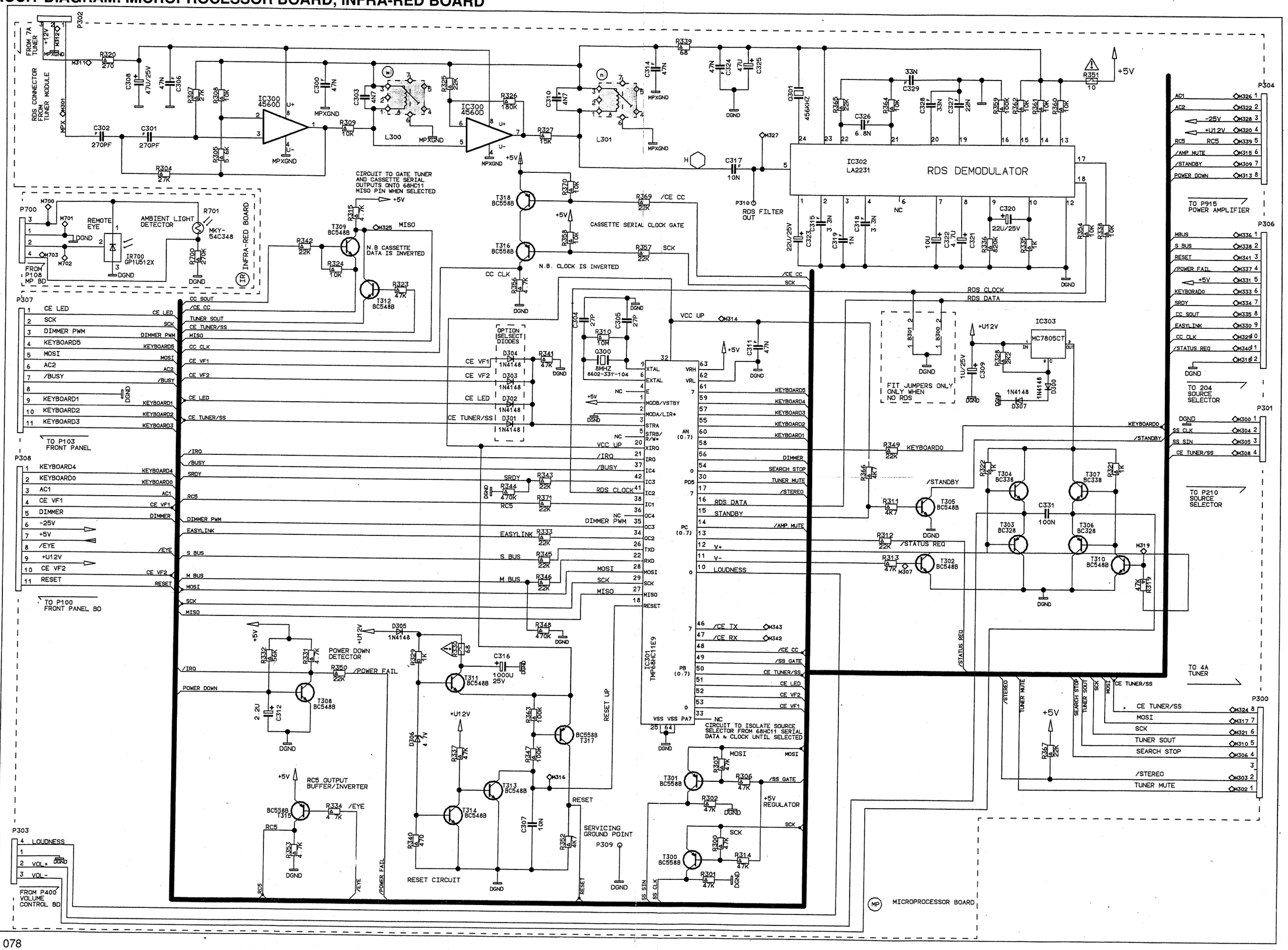
**BLOCK DIAGRAM IC 202 LC7821 PAGE 44**

# SOURCE SELECTOR PCB

component side



# CIRCUIT DIAGRAM: MICROPROCESSOR BOARD, INFRA-RED BOARD

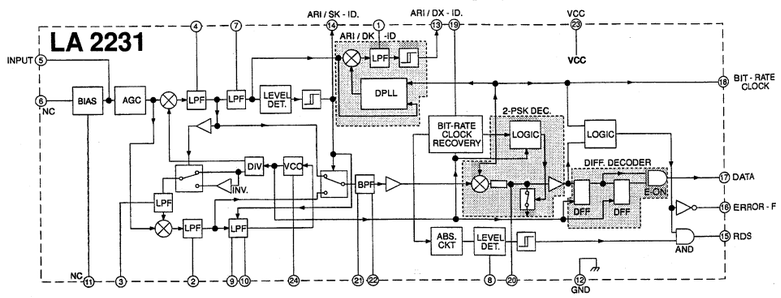



CS 33 078

# MICROPROCESSOR PCB, INFRA-RED PCB

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C 300 | C 6 | C 310 | B 7 | C 321 | B 7 | D 300 | C 5 | IC 302 | A 7 | P 306 | A 3 | R 302 | C 2 | R 312 | C 3 | R 328 | B 5 | R 338 | B 6 | R 348 | A 4 | R 359 | A 6 |
| C 301 | C 6 | C 311 | B 4 | C 322 | B 7 | D 301 | B 2 | IC 303 | B 4 | P 307 | A 1 | R 303 | C 2 | R 313 | C 5 | R 329 | B 5 | R 339 | B 6 | R 349 | A 3 | R 360 | A 6 |
| C 302 | C 6 | C 312 | B 5 | C 323 | B 8 | D 302 | B 2 | IR 700 | B 10 | P 308 | A 5 | R 304 | C 6 | R 314 | C 1 | R 330 | B 5 | R 340 | B 4 | R 350 | A 4 | R 361 | A 6 |
| C 303 | C 7 | C 314 | B 6 | C 324 | A 6 | D 303 | B 3 | L 300 | C 7 | P 309 | C 5 | R 305 | C 7 | R 315 | C 3 | R 331 | B 5 | R 341 | A 3 | R 351 | B 6 | R 362 | A 6 |
| C 304 | C 4 | C 315 | B 8 | C 325 | A 8 | D 304 | B 3 | L 301 | B 7 | P 310 | B 7 | R 306 | B 1 | R 319 | B 5 | R 332 | B 5 | R 342 | A 3 | R 352 | A 4 | R 363 | A 4 |
| C 305 | C 3 | C 316 | A 5 | C 326 | A 7 | D 305 | B 5 | P 300 | C 1 | P 700 | B 11 | R 307 | C 6 | R 320 | C 7 | R 333 | B 2 | R 343 | A 3 | R 353 | A 4 | R 364 | A 7 |
| C 306 | C 6 | C 317 | B 7 | C 327 | A 7 | D 306 | B 5 | P 301 | C 2 | Q 300 | C 3 | R 308 | C 7 | R 321 | B 6 | R 334 | A 5 | R 344 | A 3 | R 354 | A 6 | R 365 | A 7 |
| C 307 | C 4 | C 318 | B 7 | C 328 | A 7 | D 307 | C 5 | P 302 | C 8 | Q 301 | A 8 | R 309 | C 7 | R 322 | B 6 | R 335 | B 6 | R 345 | A 3 | R 356 | A 3 | R 366 | C 4 |
| C 308 | C 7 | C 319 | B 8 | C 329 | A 7 | IC 300 | C 7 | P 303 | C 4 | R 300 | C 1 | R 310 | C 3 | R 323 | B 1 | R 336 | B 6 | R 346 | A 3 | R 357 | A 2 | R 367 | C 3 |
| C 309 | C 5 | C 320 | B 7 | C 331 | C 6 | IC 301 | B 3 | P 304 | B 4 | R 301 | C 2 | R 311 | C 5 | R 324 | B 1 | R 337 | B 4 | R 347 | A 4 | R 358 | A 2 | R 369 | B 2 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| T 300 | C 5 | T 306 | C 5 | T 316 | A 2 | | |
| T 307 | C 5 | T 317 | A 4 | | | | |
| T 308 | B 5 | T 318 | A 2 | | | | |
| T 309 | B 1 | | | | | | |
| T 310 | B 5 | | | | | | |
| T 311 | B 4 | | | | | | |
| T 312 | B 1 | | | | | | |
| T 313 | A 4 | | | | | | |
| T 314 | A 4 | | | | | | |
| T 315 | A 5 | | | | | | |

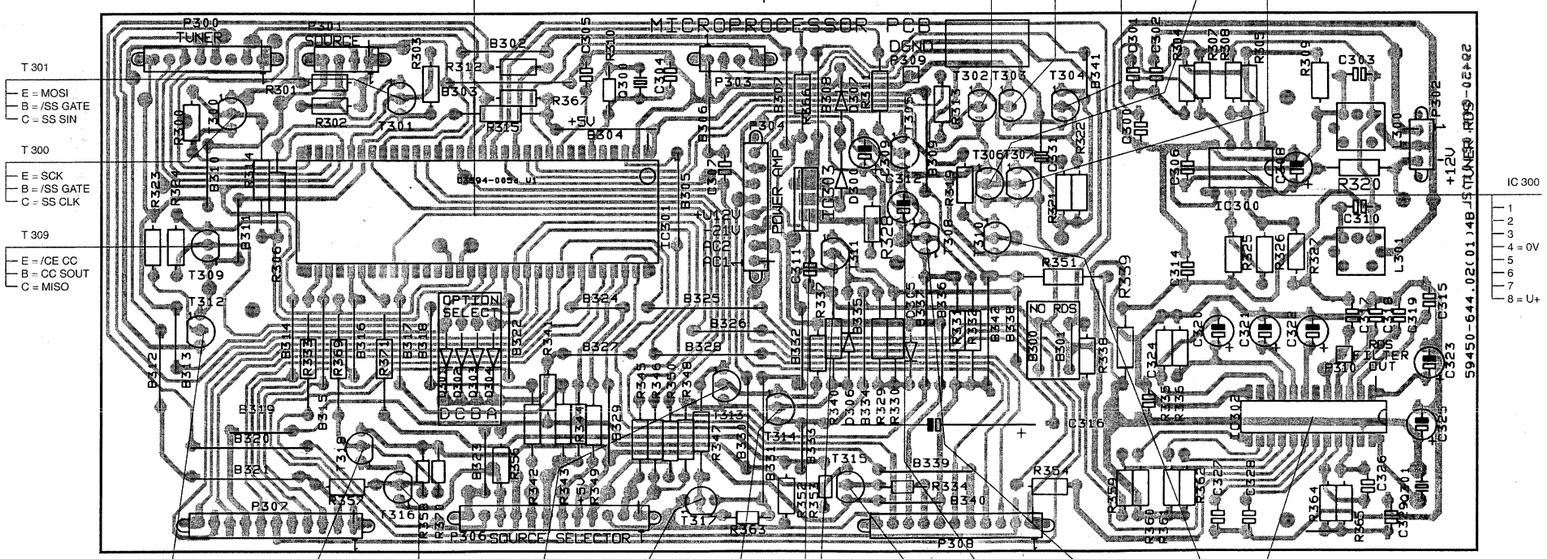



IC 301

| | | | |
|---|---|---|---|
| 1 = 5V | 17 = /STEREO | 33 | 49 = /SS GATE |
| 2 = 0V | 18 = RESET | 34 = EASYLINK | 50 = CE TUNER/SS |
| 3 = STRA | 19 | 35 = DIMMER PWM | 51 = CE LED |
| 4 | 20 = VCC UP | 36 | 52 = CE VF2 |
| 5 | 21 = /IRQ | 37 = /BUSY | 53 = CE VF1 |
| 6 = 8MHz | 22 = M BUS | 38 = RC5 | 54 = SEARCH STOP |
| 7 | 23 | 39 | 55 = KEYBOARD2 |
| 8 | 24 | 40 | 56 = DIMMER |
| 9 = 8MHz | 25 = 0V | 41 = RDS CLOCK | 57 = KEYBOARD3 |
| 10 = LOUDNESS | 26 = S BUS | 42 = SRDY | 58 = KEYBOARD0 |
| 11 = V- | 27 = MISO | 43 | 59 = KEYBOARD4 |
| 12 = V+ | 28 = MOSI | 44 | 60 = KEYBOARD1 |
| 13 = /STATUS REQ | 29 = SCK | 45 | 61 = KEYBOARD5 |
| 14 = /AMP MUTE | 30 = TUNER MUTE | 46 = /CE TX | 62 = 0V |
| 15 = STANDBY | 31 | 47 = /CE RX | 63 = 5V |
| 16 = RDS DATA | 32 = VCC UP | 48 = /CE CC | 64 = 0V |

## MICROPROCESSOR PCB

component side




T 301
- E = MOSI
- B = /SS GATE
- C = SS SIN

T 300
- E = SCK
- B = /SS GATE
- C = SS CLK

T 309
- E = /CE CC
- B = CC SOUT
- C = MISO

T 302 / T 303
- E = 0V
- B = V-
- C = V+

T 304
- E
- B
- C = 0V

T 306
- E = 6.4V
- B
- C

T 307
- E
- B
- C = 6.4V

IC 300
- 1
- 2
- 3
- 4 = 0V
- 5
- 6
- 7
- 8 = U+

T 312
- E = TUNER SOUT
- B = CE TUNER/SS
- C = MISO

T 318
- E = 5V
- B = /CE CC
- C

T 316
- E
- B = SCK
- C = CC CLK

T 313
- E = 0V
- B
- C = RESET UP

T 317
- E = VCC UP
- B
- C = RESET

T 314
- E = 0V
- B
- C

T 311
- E = VCC UP
- B
- C

IC 303
- 1 = 12V
- 2 = 1.4V
- 3 = 6.4V

T 315
- E = 5V
- B = /EYE
- C = RC5

T 305
- E = 0V
- B = STANDBY
- C = /STANDBY

T 308
- E = 0V
- B = POWER DOWN
- C = /IRQ

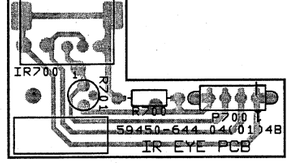
T 310
- E = 0V
- B = V+
- C

IC 302

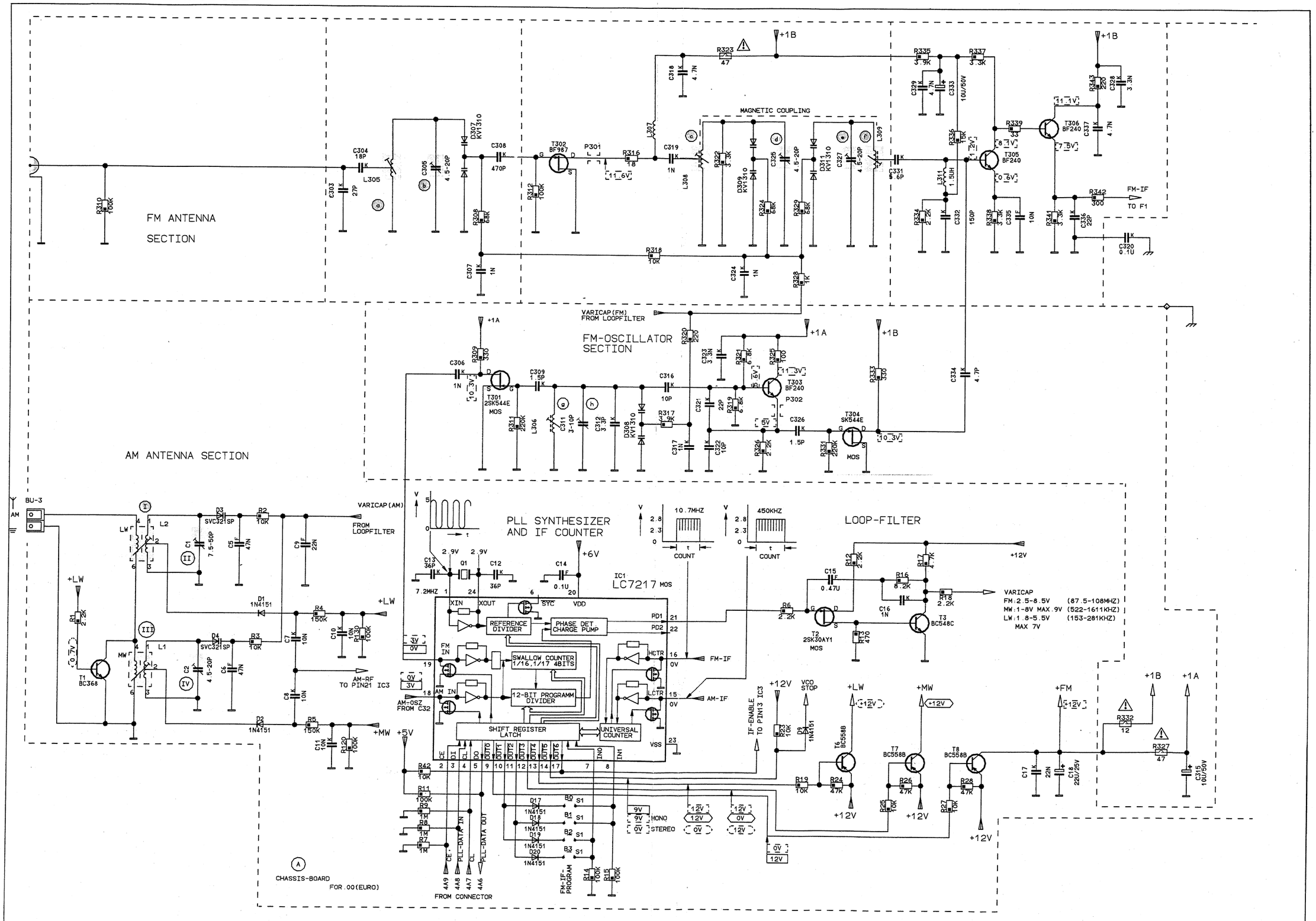
| | |
|---|---|
| 1 | 13 |
| 2 | 14 |
| 3 | 15 |
| 4 | 16 |
| 5 = INPUT | 17 = RDS DATA |
| 6 | 18 = RDS CLOCK |
| 7 | 19 |
| 8 | 20 |
| 9 | 21 |
| 10 | 22 |
| 11 | 23 = 5V |
| 12 =0V | 24 = 456KHz |

## INFRA-RED PCB

component side

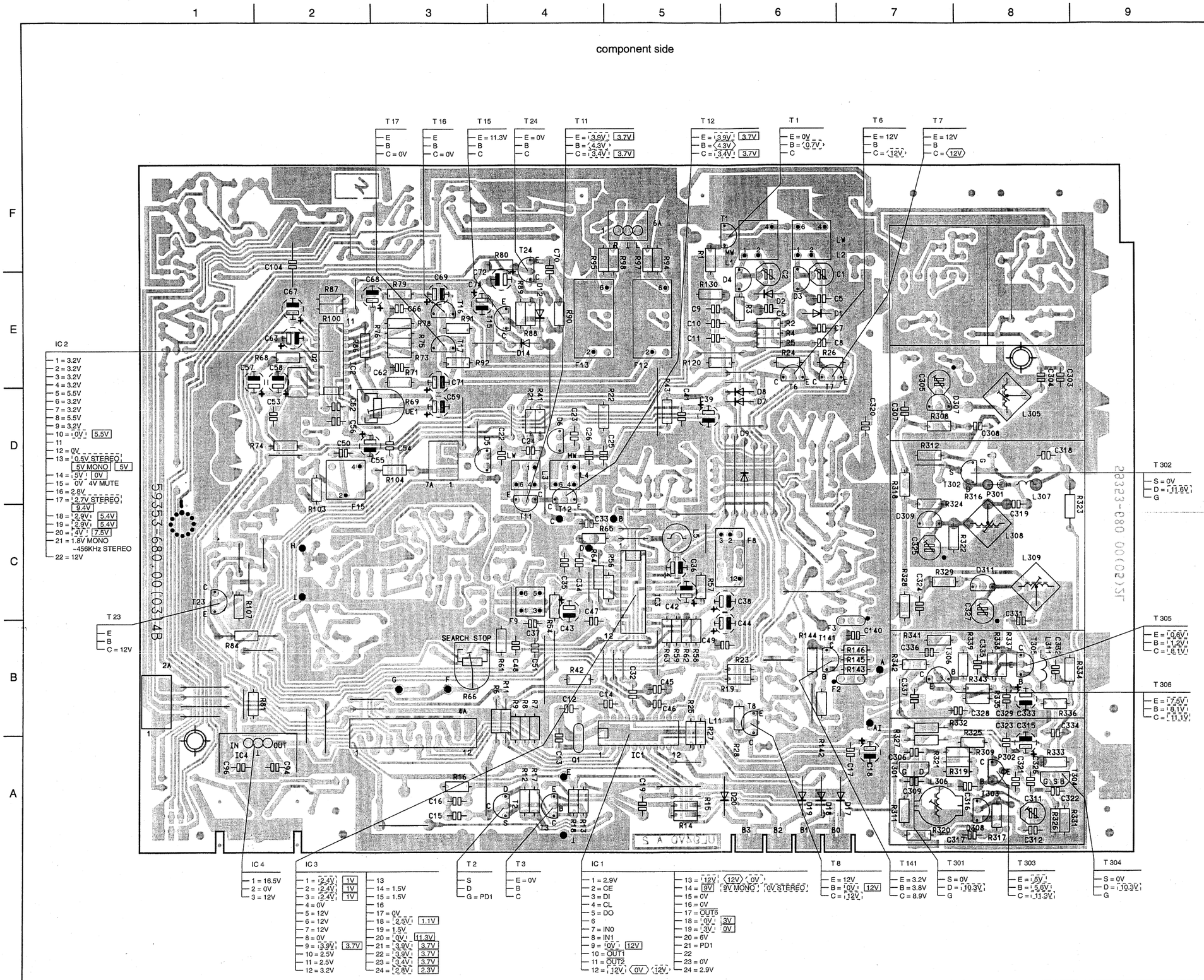


# CIRCUIT DIAGRAM TUNER MODULE - PART 1



# TUNER PCB

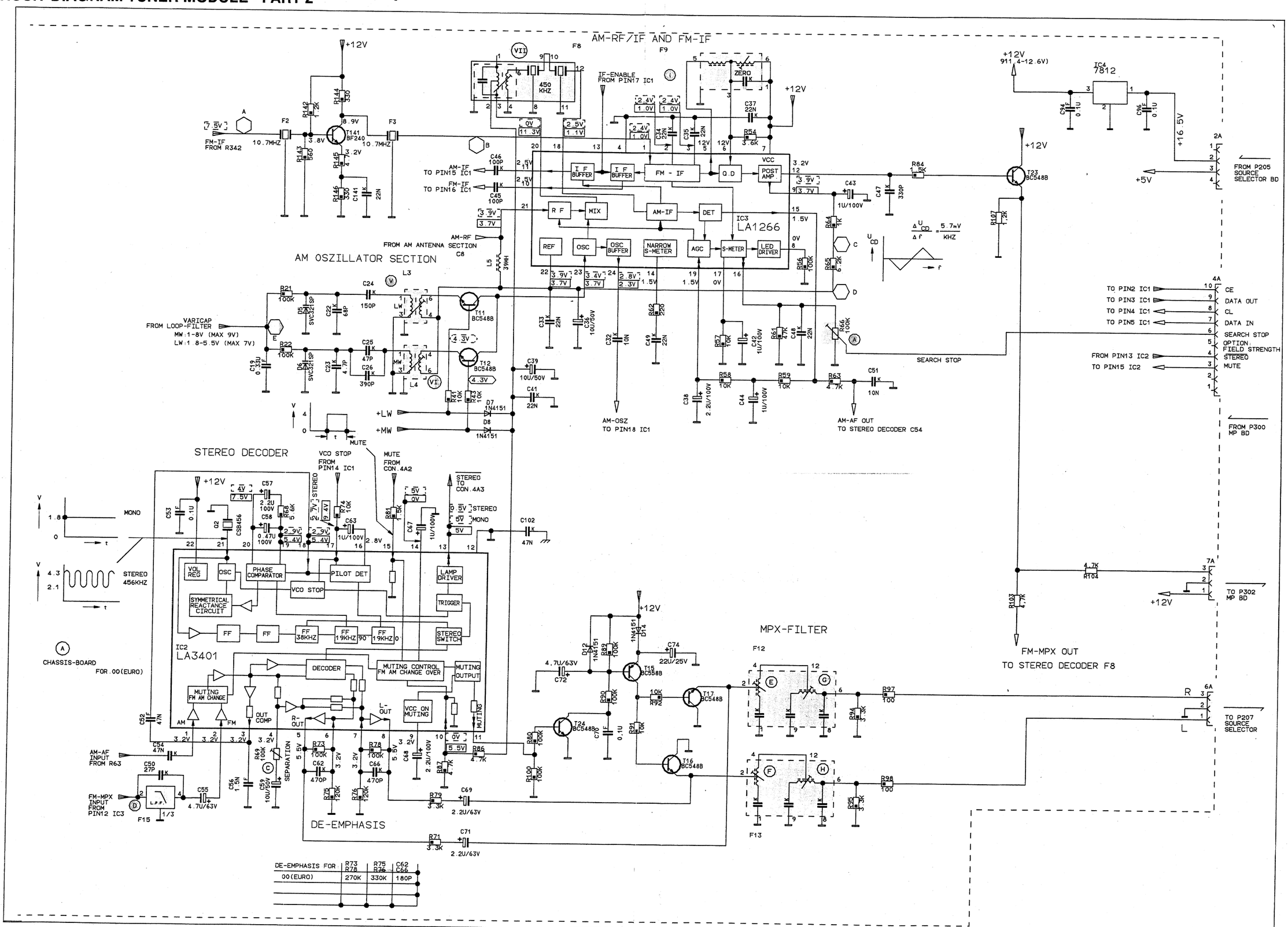
component side




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 A | B 1 | C 329 | B 8 | R 063 | B 5 | | |
| 4 A | B 3 | C 331 | C 8 | R 064 | C 4 | | |
| 6 A | F 5 | C 332 | B 8 | R 065 | C 4 | | |
| 7 A | D 3 | C 333 | B 8 | R 066 | B 3 | | |
| C 001 | E 6 | C 334 | B 8 | R 068 | E 2 | | |
| C 002 | E 6 | C 335 | B 8 | R 069 | D 3 | | |
| C 005 | E 6 | C 336 | B 7 | R 071 | E 3 | | |
| C 006 | E 6 | C 337 | B 7 | R 073 | E 3 | | |
| C 007 | E 6 | D 001 | E 6 | R 074 | D 2 | | |
| C 008 | E 6 | D 002 | E 6 | R 075 | E 3 | | |
| C 009 | E 5 | D 003 | E 6 | R 076 | E 3 | | |
| C 010 | E 5 | D 004 | E 6 | R 078 | E 3 | | |
| C 011 | E 5 | D 005 | D 3 | R 079 | E 3 | | |
| C 012 | B 4 | D 006 | D 4 | R 080 | F 4 | | |
| C 013 | A 4 | D 007 | D 6 | R 081 | B 1 | | |
| C 014 | B 5 | D 008 | D 6 | R 084 | B 1 | | |
| C 015 | A 3 | D 009 | D 6 | R 086 | E 2 | | |
| C 016 | A 3 | D 012 | E 4 | R 087 | E 2 | | |
| C 017 | A 7 | D 014 | E 4 | R 088 | E 4 | | |
| C 018 | A 7 | D 014 | E 4 | R 089 | E 4 | | |
| C 019 | A 5 | D 017 | A 7 | R 090 | E 4 | | |
| C 022 | D 4 | D 018 | A 6 | R 091 | E 3 | | |
| C 023 | D 4 | D 019 | A 6 | R 092 | E 3 | | |
| C 024 | D 4 | D 020 | A 6 | R 094 | F 5 | | |
| C 025 | D 4 | D 307 | D 7 | R 095 | F 4 | | |
| C 026 | D 4 | D 309 | C 7 | R 097 | F 5 | | |
| C 032 | B 5 | D 311 | C 8 | R 098 | F 5 | | |
| C 033 | C 4 | F 002 | B 7 | R 100 | E 2 | | |
| C 034 | C 4 | F 003 | B 7 | R 103 | D 2 | | |
| C 035 | C 4 | F 008 | C 6 | R 104 | D 3 | | |
| C 036 | C 5 | F 009 | C 4 | R 107 | C 1 | | |
| C 037 | B 4 | F 012 | E 5 | R 120 | E 5 | | |
| C 038 | C 6 | F 013 | E 4 | R 130 | E 5 | | |
| C 039 | D 5 | F 015 | D 2 | R 142 | B 6 | | |
| C 041 | D 5 | IC 001 | B 5 | R 143 | B 7 | | |
| C 042 | C 5 | IC 002 | E 2 | R 144 | B 6 | | |
| C 043 | C 4 | IC 003 | C 5 | R 145 | B 7 | | |
| C 044 | B 6 | IC 004 | A 1 | R 146 | B 7 | | |
| C 045 | B 5 | L 001 | F 6 | R 308 | D 7 | | |
| C 046 | B 5 | L 002 | F 6 | R 309 | A 8 | | |
| C 047 | B 4 | L 003 | D 4 | R 311 | A 7 | | |
| C 048 | B 4 | L 004 | D 4 | R 312 | D 7 | | |
| C 049 | B 6 | L 005 | C 5 | R 316 | D 8 | | |
| C 050 | D 2 | L 305 | D 8 | R 317 | A 8 | | |
| C 051 | B 4 | L 306 | A 7 | R 318 | D 7 | | |
| C 052 | D 2 | L 307 | D 8 | R 319 | A 8 | | |
| C 053 | D 2 | L 308 | C 8 | R 320 | A 7 | | |
| C 054 | D 3 | L 309 | C 8 | R 321 | A 8 | | |
| C 055 | D 2 | L 311 | B 8 | R 323 | C 8 | | |
| C 056 | D 2 | P 301 | D 8 | R 324 | C 7 | | |
| C 057 | E 1 | P 302 | A 8 | R 325 | A 8 | | |
| C 058 | E 2 | Q 001 | A 4 | R 326 | A 8 | | |
| C 059 | D 3 | Q 002 | E 2 | R 327 | A 7 | | |
| C 062 | E 3 | R 001 | F 5 | R 328 | C 7 | | |
| C 063 | E 2 | R 002 | E 6 | R 329 | C 7 | | |
| C 067 | E 2 | R 003 | E 6 | R 331 | A 8 | | |
| C 068 | E 3 | R 004 | E 6 | R 332 | B 7 | | |
| C 069 | E 3 | R 005 | E 6 | R 332 | C 7 | | |
| C 070 | F 4 | R 006 | B 4 | R 333 | A 8 | | |
| C 071 | E 3 | R 007 | B 4 | R 334 | B 8 | | |
| C 072 | E 4 | R 008 | B 4 | R 335 | B 8 | | |
| C 074 | E 3 | R 009 | B 4 | R 336 | B 8 | | |
| C 094 | A 2 | R 011 | B 4 | R 337 | B 8 | | |
| C 096 | A 1 | R 012 | A 4 | R 338 | B 8 | | |
| C 104 | F 2 | R 013 | A 4 | R 339 | B 8 | | |
| C 140 | B 7 | R 014 | A 5 | R 341 | B 7 | | |
| C 303 | E 8 | R 015 | A 5 | R 342 | B 7 | | |
| C 304 | E 8 | R 016 | A 3 | R 343 | B 8 | | |
| C 305 | E 7 | R 017 | A 4 | T 001 | F 6 | | |
| C 306 | A 7 | R 018 | A 4 | T 002 | A 4 | | |
| C 307 | D 7 | R 019 | B 6 | T 003 | A 4 | | |
| C 308 | A 8 | R 021 | D 4 | T 006 | E 6 | | |
| C 308 | D 8 | R 022 | D 4 | T 007 | E 6 | | |
| C 309 | A 7 | R 023 | B 6 | T 008 | B 6 | | |
| C 311 | A 8 | R 024 | E 6 | T 011 | C 4 | | |
| C 312 | A 8 | R 025 | B 5 | T 012 | D 4 | | |
| C 315 | A 8 | R 026 | E 6 | T 015 | E 4 | | |
| C 316 | A 8 | R 027 | B 5 | T 016 | E 3 | | |
| C 318 | D 8 | R 028 | B 6 | T 017 | E 3 | | |
| C 319 | C 8 | R 041 | D 4 | T 023 | C 1 | | |
| C 320 | D 7 | R 042 | B 4 | T 024 | F 4 | | |
| C 321 | A 8 | R 043 | D 5 | T 141 | B 6 | | |
| C 322 | A 8 | R 054 | C 4 | T 301 | A 7 | | |
| C 323 | A 8 | R 056 | C 5 | T 302 | D 8 | | |
| C 324 | C 7 | R 057 | C 5 | T 303 | A 8 | | |
| C 325 | C 7 | R 058 | B 5 | T 304 | A 8 | | |
| C 326 | A 8 | R 059 | B 5 | T 305 | B 8 | | |
| C 327 | C 8 | R 061 | B 4 | T 306 | B 7 | | |
| C 328 | B 8 | R 062 | B 5 | | | | |

CS 33 081

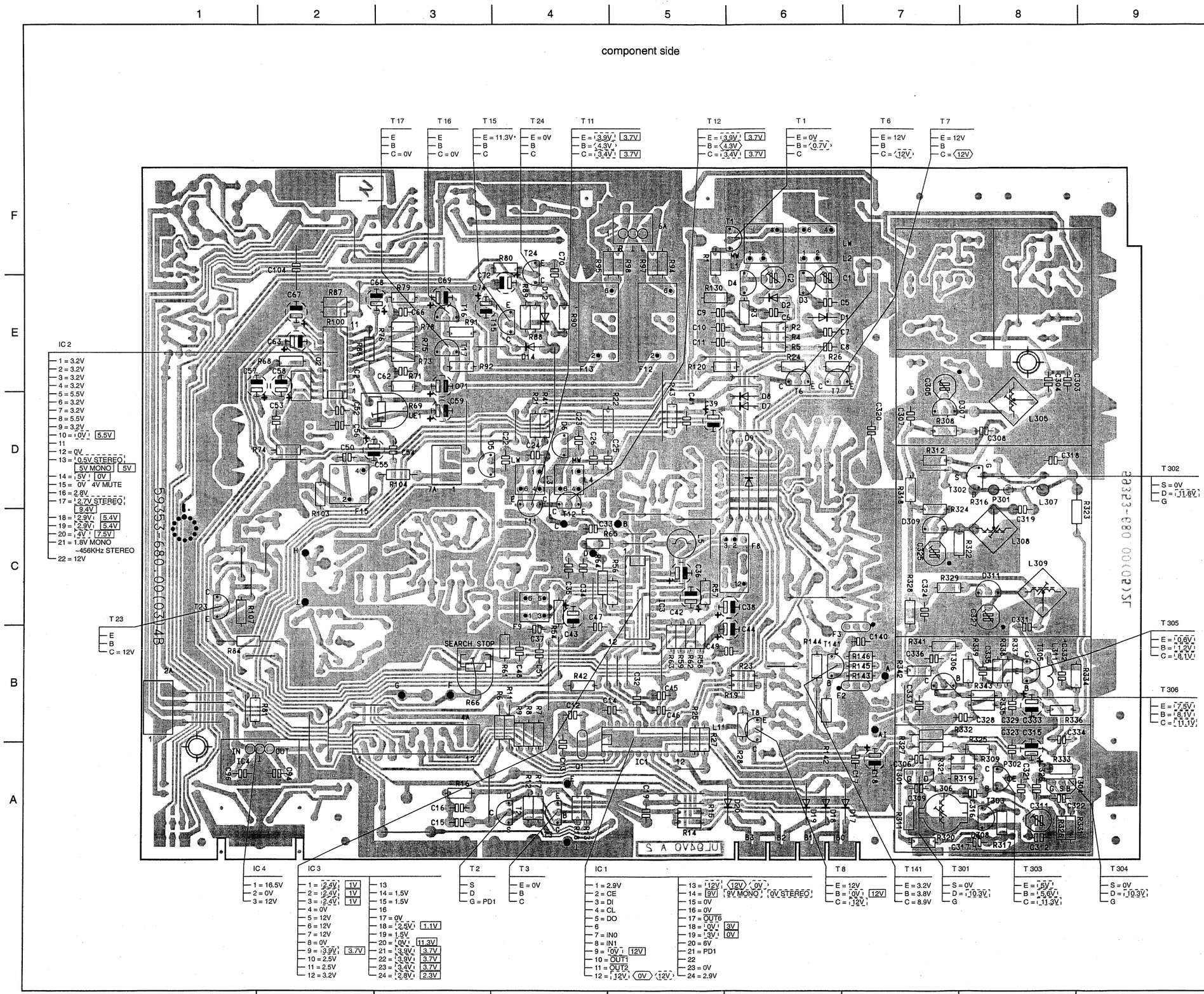
# CIRCUIT DIAGRAM TUNER MODULE - PART 2




CS 33 082

# TUNER PCB

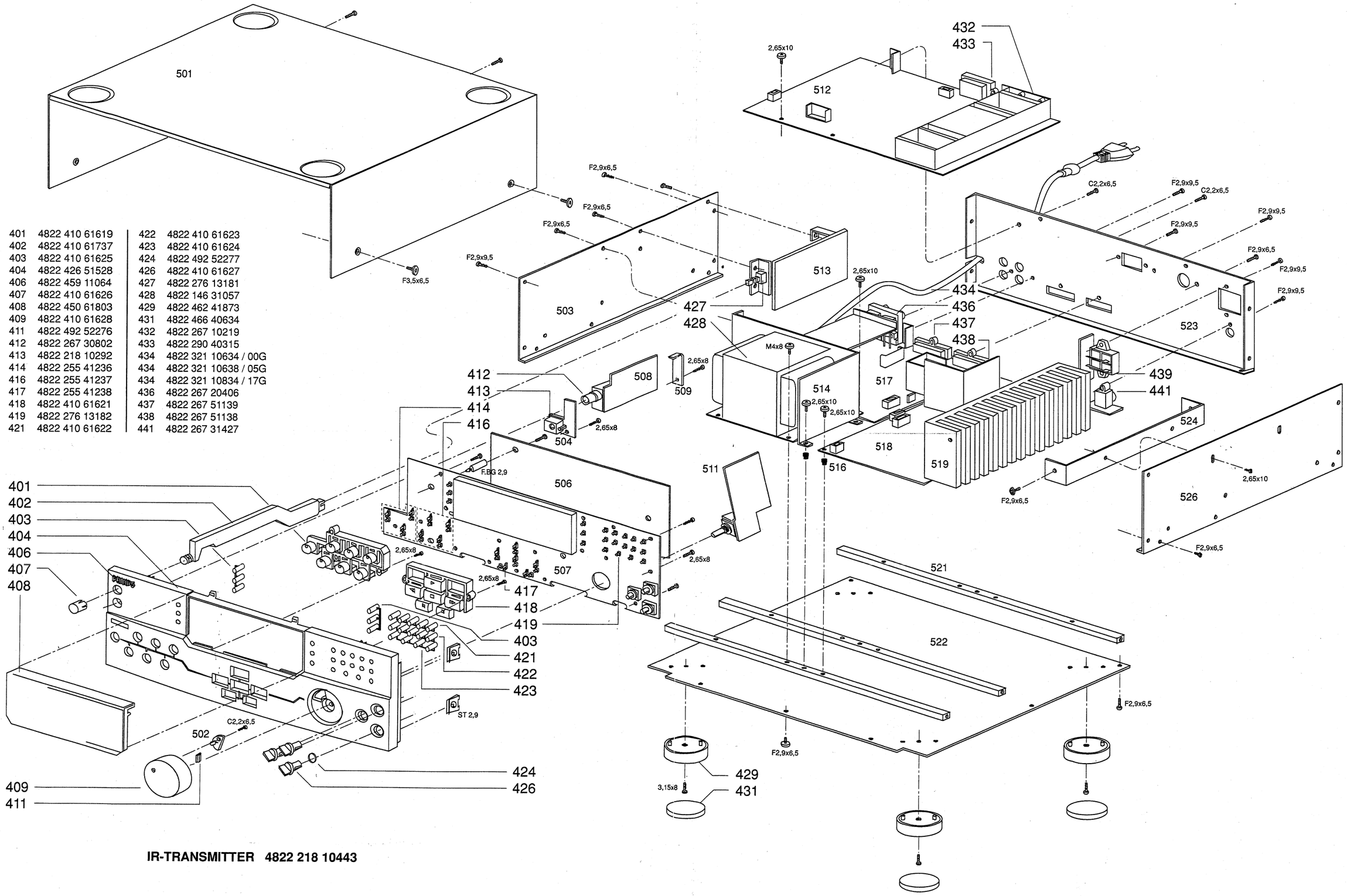
component side




| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 A | B 1 | C 329 | B 8 | R 063 | B 5 | | | | | | |
| 4 A | B 3 | C 331 | C 8 | R 064 | C 4 | | | | | | |
| 6 A | F 5 | C 332 | B 8 | R 065 | C 4 | | | | | | |
| 7 A | D 3 | C 333 | B 8 | R 066 | B 3 | | | | | | |
| C 001 | E 6 | C 334 | B 8 | R 068 | E 2 | | | | | | |
| C 002 | E 6 | C 335 | B 8 | R 069 | D 3 | | | | | | |
| C 005 | E 6 | C 336 | B 7 | R 071 | E 3 | | | | | | |
| C 006 | E 6 | C 337 | B 7 | R 073 | E 3 | | | | | | |
| C 007 | E 6 | D 001 | E 6 | R 074 | D 2 | | | | | | |
| C 008 | E 6 | D 002 | E 6 | R 075 | E 3 | | | | | | |
| C 009 | E 5 | D 003 | E 6 | R 076 | E 3 | | | | | | |
| C 010 | E 5 | D 004 | E 6 | R 078 | E 3 | | | | | | |
| C 011 | E 5 | D 005 | D 3 | R 079 | E 3 | | | | | | |
| C 012 | B 4 | D 006 | D 4 | R 080 | F 4 | | | | | | |
| C 013 | A 4 | D 007 | D 6 | R 081 | B 1 | | | | | | |
| C 014 | B 5 | D 008 | D 6 | R 084 | B 1 | | | | | | |
| C 015 | A 3 | D 009 | D 6 | R 086 | E 2 | | | | | | |
| C 016 | A 3 | D 012 | E 4 | R 087 | E 2 | | | | | | |
| C 017 | A 7 | D 014 | E 4 | R 088 | E 4 | | | | | | |
| C 018 | A 7 | D 014 | E 4 | R 089 | E 4 | | | | | | |
| C 019 | A 5 | D 017 | A 7 | R 090 | E 4 | | | | | | |
| C 022 | D 4 | D 018 | A 6 | R 091 | E 3 | | | | | | |
| C 023 | D 4 | D 019 | A 6 | R 092 | E 3 | | | | | | |
| C 024 | D 4 | D 020 | A 6 | R 094 | F 5 | | | | | | |
| C 025 | D 4 | D 307 | D 7 | R 095 | F 4 | | | | | | |
| C 026 | D 4 | D 309 | C 7 | R 097 | F 5 | | | | | | |
| C 032 | B 5 | D 311 | C 8 | R 098 | F 5 | | | | | | |
| C 033 | C 4 | F 002 | B 7 | R 100 | E 2 | | | | | | |
| C 034 | C 4 | F 003 | B 7 | R 103 | D 2 | | | | | | |
| C 035 | C 4 | F 008 | C 6 | R 104 | D 3 | | | | | | |
| C 036 | C 5 | F 009 | C 4 | R 107 | C 1 | | | | | | |
| C 037 | B 4 | F 012 | E 5 | R 120 | E 5 | | | | | | |
| C 038 | C 6 | F 013 | E 4 | R 130 | E 5 | | | | | | |
| C 039 | D 5 | F 015 | D 2 | R 142 | B 6 | | | | | | |
| C 041 | D 5 | IC 001 | B 5 | R 143 | B 7 | | | | | | |
| C 042 | C 5 | IC 002 | E 2 | R 144 | B 6 | | | | | | |
| C 043 | C 4 | IC 003 | C 5 | R 145 | B 7 | | | | | | |
| C 044 | B 6 | IC 004 | A 1 | R 146 | B 7 | | | | | | |
| C 045 | B 5 | L 001 | F 6 | R 308 | D 7 | | | | | | |
| C 046 | B 5 | L 002 | F 6 | R 309 | A 8 | | | | | | |
| C 047 | B 4 | L 003 | D 4 | R 311 | A 7 | | | | | | |
| C 048 | B 4 | L 004 | D 4 | R 312 | D 7 | | | | | | |
| C 049 | B 6 | L 005 | C 5 | R 316 | D 8 | | | | | | |
| C 050 | D 2 | L 305 | D 8 | R 317 | A 8 | | | | | | |
| C 051 | B 4 | L 306 | A 7 | R 318 | D 7 | | | | | | |
| C 052 | D 2 | L 307 | D 8 | R 319 | A 8 | | | | | | |
| C 053 | D 2 | L 308 | C 8 | R 320 | A 7 | | | | | | |
| C 054 | D 3 | L 309 | C 8 | R 321 | A 8 | | | | | | |
| C 055 | D 2 | L 311 | B 8 | R 323 | C 8 | | | | | | |
| C 056 | D 2 | P 301 | D 8 | R 324 | C 7 | | | | | | |
| C 057 | E 1 | P 302 | A 8 | R 325 | A 8 | | | | | | |
| C 058 | E 2 | Q 001 | A 4 | R 326 | A 8 | | | | | | |
| C 059 | D 3 | Q 002 | E 2 | R 327 | A 7 | | | | | | |
| C 062 | E 3 | R 001 | F 5 | R 328 | C 7 | | | | | | |
| C 063 | E 2 | R 002 | E 6 | R 329 | C 7 | | | | | | |
| C 067 | E 2 | R 003 | E 6 | R 331 | A 8 | | | | | | |
| C 068 | E 3 | R 004 | E 6 | R 332 | B 7 | | | | | | |
| C 069 | E 3 | R 005 | E 6 | R 332 | C 7 | | | | | | |
| C 070 | F 4 | R 006 | B 4 | R 333 | A 8 | | | | | | |
| C 071 | E 3 | R 007 | B 4 | R 334 | B 8 | | | | | | |
| C 072 | E 4 | R 008 | B 4 | R 335 | B 8 | | | | | | |
| C 074 | E 3 | R 009 | B 4 | R 336 | B 8 | | | | | | |
| C 094 | A 2 | R 011 | B 4 | R 337 | B 8 | | | | | | |
| C 096 | A 1 | R 012 | A 4 | R 338 | B 8 | | | | | | |
| C 104 | F 2 | R 013 | A 4 | R 339 | B 8 | | | | | | |
| C 140 | B 7 | R 014 | A 5 | R 341 | B 7 | | | | | | |
| C 303 | E 8 | R 015 | A 5 | R 342 | B 7 | | | | | | |
| C 304 | E 8 | R 016 | A 3 | R 343 | B 8 | | | | | | |
| C 305 | E 7 | R 017 | A 4 | T 001 | F 6 | | | | | | |
| C 306 | A 7 | R 018 | A 4 | T 002 | A 4 | | | | | | |
| C 307 | D 7 | R 019 | B 6 | T 003 | A 4 | | | | | | |
| C 308 | A 8 | R 021 | D 4 | T 006 | E 6 | | | | | | |
| C 308 | D 8 | R 022 | D 4 | T 007 | E 6 | | | | | | |
| C 309 | A 7 | R 023 | B 6 | T 008 | B 6 | | | | | | |
| C 311 | A 8 | R 024 | E 6 | T 011 | C 4 | | | | | | |
| C 312 | A 8 | R 025 | B 5 | T 012 | D 4 | | | | | | |
| C 315 | A 8 | R 026 | E 6 | T 015 | E 4 | | | | | | |
| C 316 | A 8 | R 027 | B 5 | T 016 | E 3 | | | | | | |
| C 318 | D 8 | R 028 | B 6 | T 017 | E 3 | | | | | | |
| C 319 | C 8 | R 041 | D 4 | T 023 | C 1 | | | | | | |
| C 320 | D 7 | R 042 | B 4 | T 024 | F 4 | | | | | | |
| C 321 | A 8 | R 043 | D 5 | T 141 | B 6 | | | | | | |
| C 322 | A 8 | R 054 | C 4 | T 301 | A 7 | | | | | | |
| C 323 | A 8 | R 056 | C 5 | T 302 | D 8 | | | | | | |
| C 324 | C 7 | R 057 | C 5 | T 303 | A 8 | | | | | | |
| C 325 | C 7 | R 058 | B 5 | T 304 | A 8 | | | | | | |
| C 326 | A 8 | R 059 | B 5 | T 305 | B 8 | | | | | | |
| C 327 | C 8 | R 061 | B 4 | T 306 | B 7 | | | | | | |
| C 328 | B 8 | R 062 | B 5 | | | | | | | | |

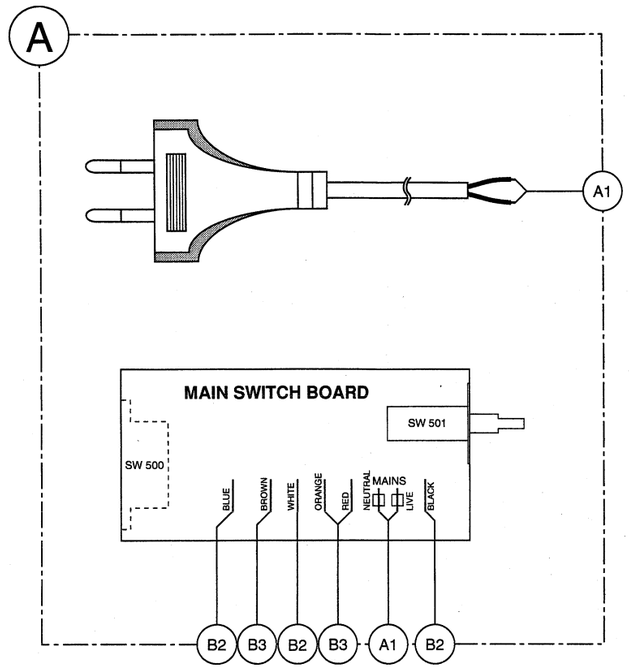
# EXPLODED VIEW, LIST OF MECHANICAL PARTS

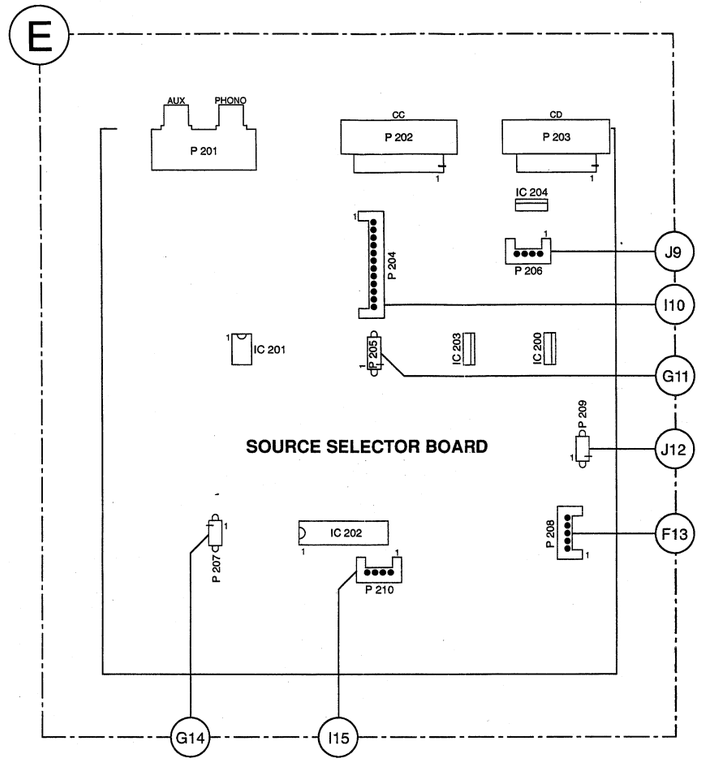
| | | | |
|---|---|---|---|
| 401 | 4822 410 61619 | 422 | 4822 410 61623 |
| 402 | 4822 410 61737 | 423 | 4822 410 61624 |
| 403 | 4822 410 61625 | 424 | 4822 492 52277 |
| 404 | 4822 426 51528 | 426 | 4822 410 61627 |
| 406 | 4822 459 11064 | 427 | 4822 276 13181 |
| 407 | 4822 410 61626 | 428 | 4822 146 31057 |
| 408 | 4822 450 61803 | 429 | 4822 462 41873 |
| 409 | 4822 410 61628 | 431 | 4822 466 40634 |
| 411 | 4822 492 52276 | 432 | 4822 267 10219 |
| 412 | 4822 267 30802 | 433 | 4822 290 40315 |
| 413 | 4822 218 10292 | 434 | 4822 321 10634 / 00G |
| 414 | 4822 255 41236 | 434 | 4822 321 10638 / 05G |
| 416 | 4822 255 41237 | 434 | 4822 321 10834 / 17G |
| 417 | 4822 255 41238 | 436 | 4822 267 20406 |
| 418 | 4822 410 61621 | 437 | 4822 267 51139 |
| 419 | 4822 276 13182 | 438 | 4822 267 51138 |
| 421 | 4822 410 61622 | 441 | 4822 267 31427 |

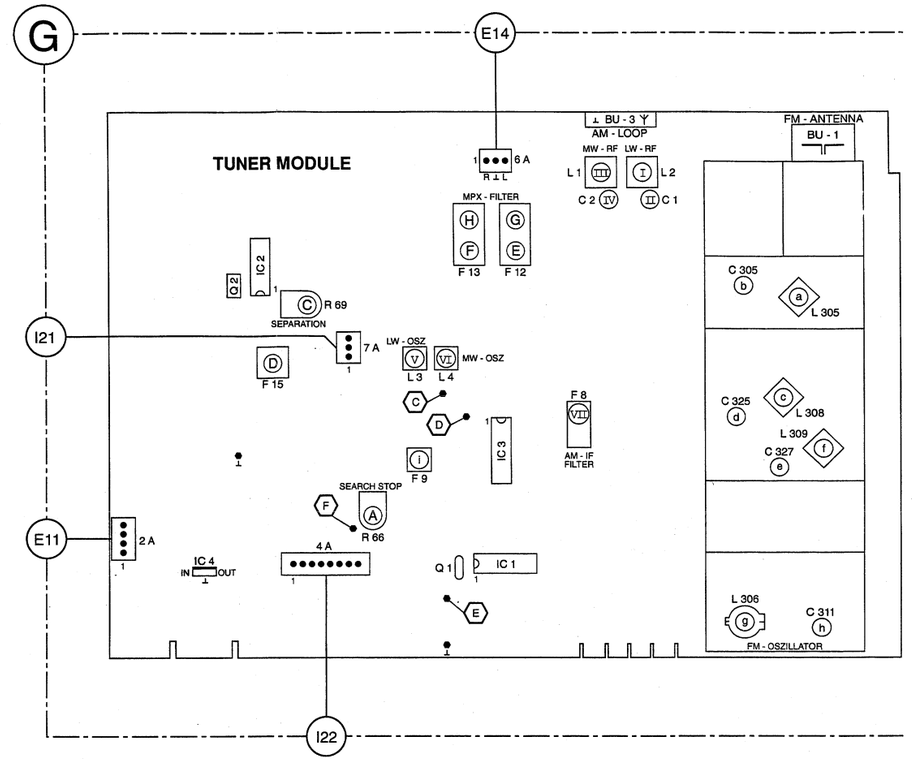


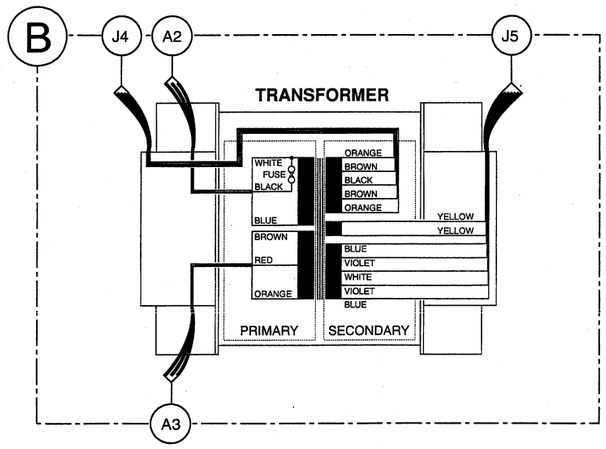

**IR-TRANSMITTER 4822 218 10443**

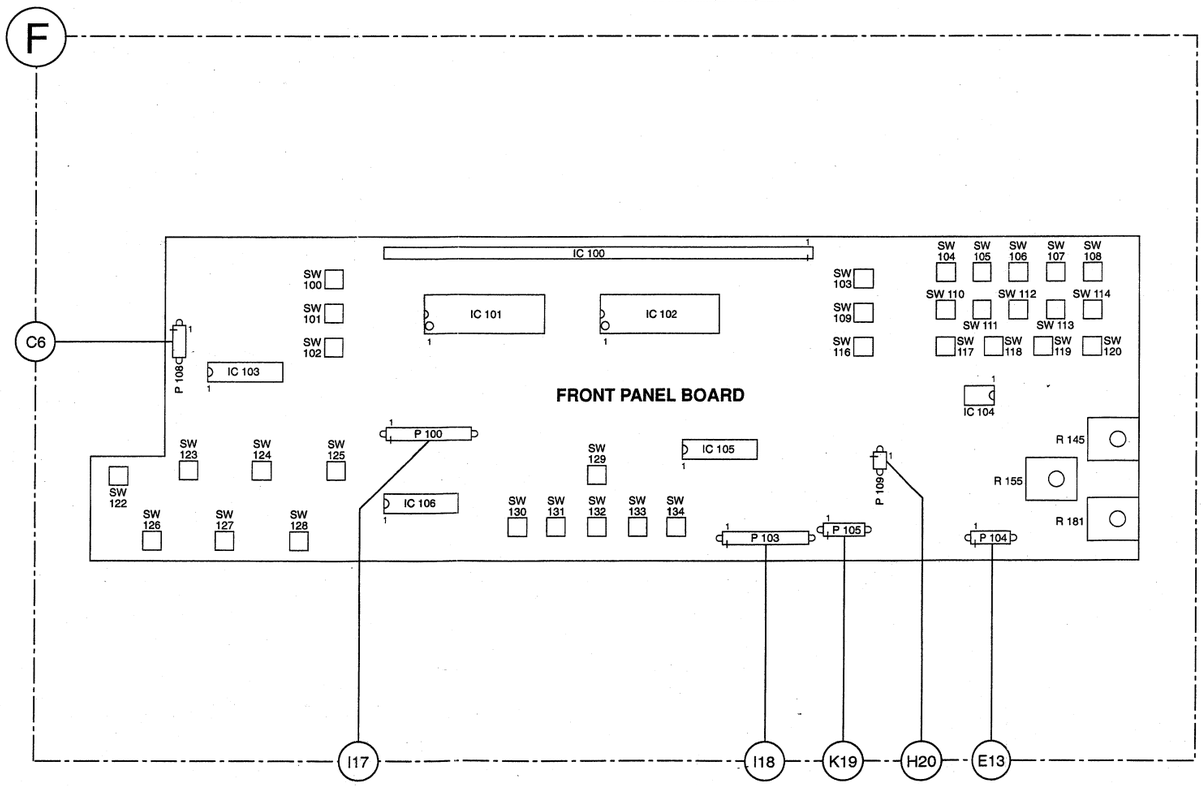
# WIRING DIAGRAM

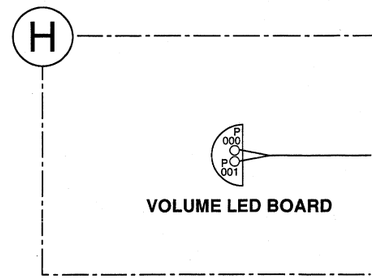


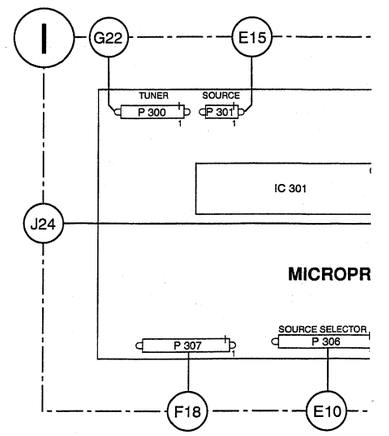



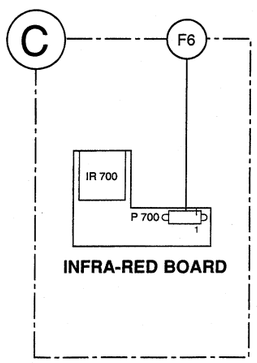



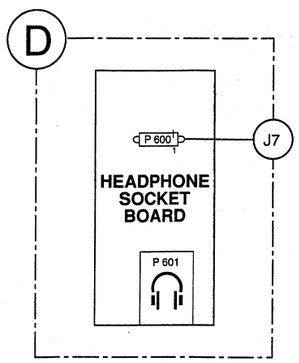



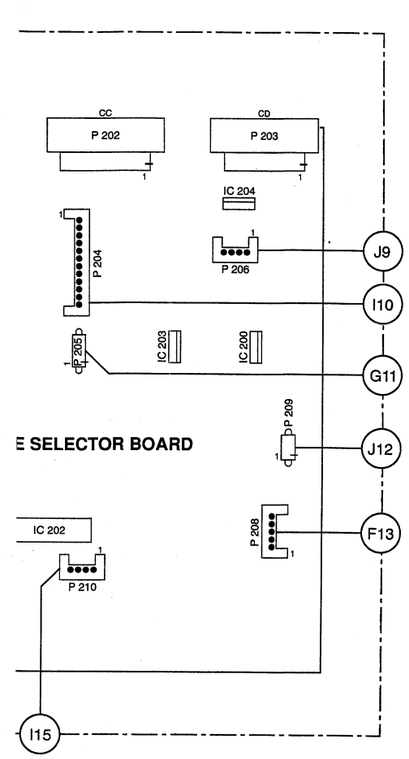



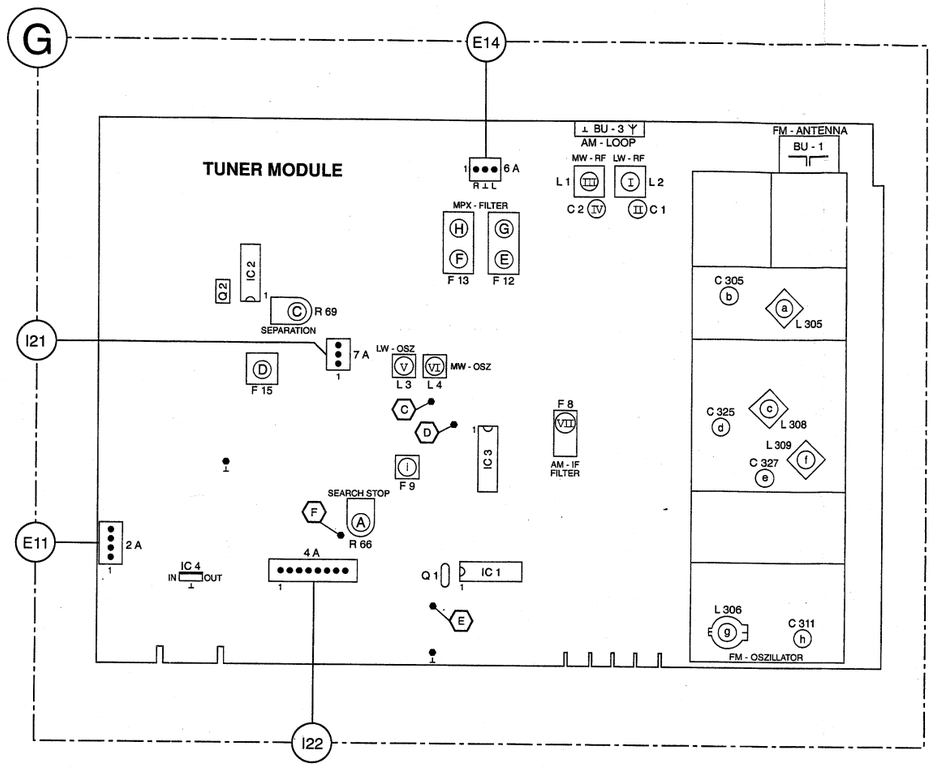



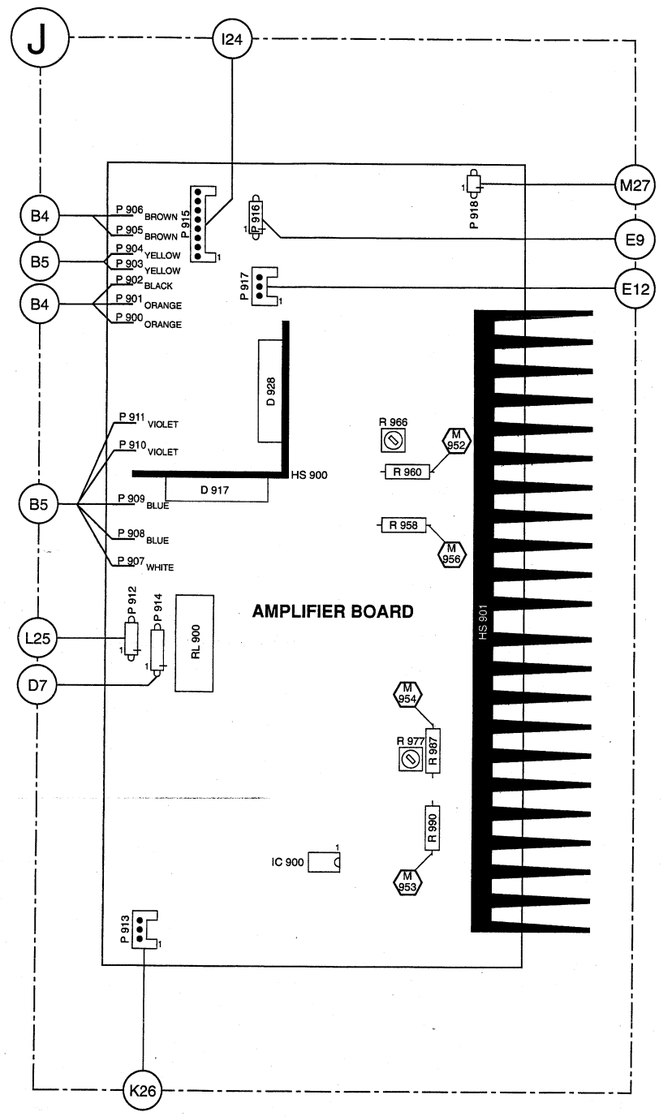



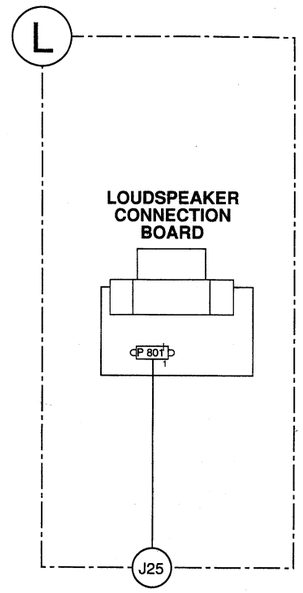



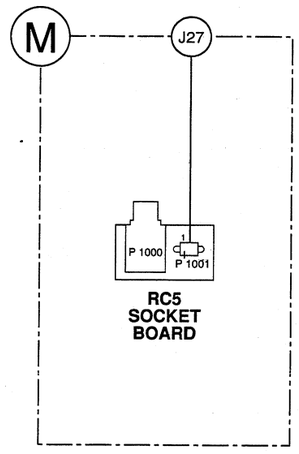



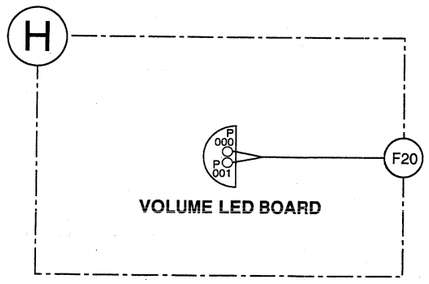

CC
P 202
CD
P 203
IC 204
P 204
P 206
J9
I10
P 205
IC 203
IC 200
G11
E SELECTOR BOARD
P 209
J12
IC 202
P 208
F13
P 210
I15

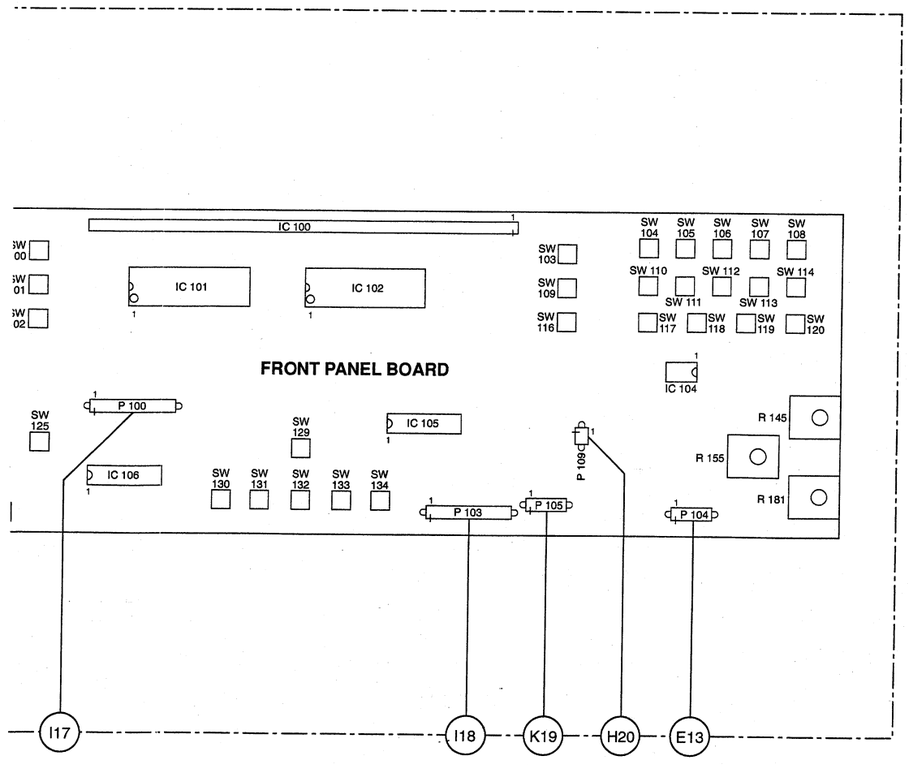

G
E14
TUNER MODULE
BU - 3
AM - LOOP
FM - ANTENNA
BU - 1
6 A
MW - RF
LW - RF
L 1
L 2
C 2
C 1
MPX - FILTER
F 13
F 12
C 305
L 305
IC 2
Q 2
R 69
SEPARATION
I21
7 A
LW - OSZ
MW - OSZ
L 3
L 4
F 15
C 325
L 308
L 309
C 327
F 8
AM - IF FILTER
IC 3
F 9
SEARCH STOP
R 66
E11
2 A
IC 4
IN
OUT
4 A
Q 1
IC 1
L 306
C 311
FM - OSZILLATOR
I22

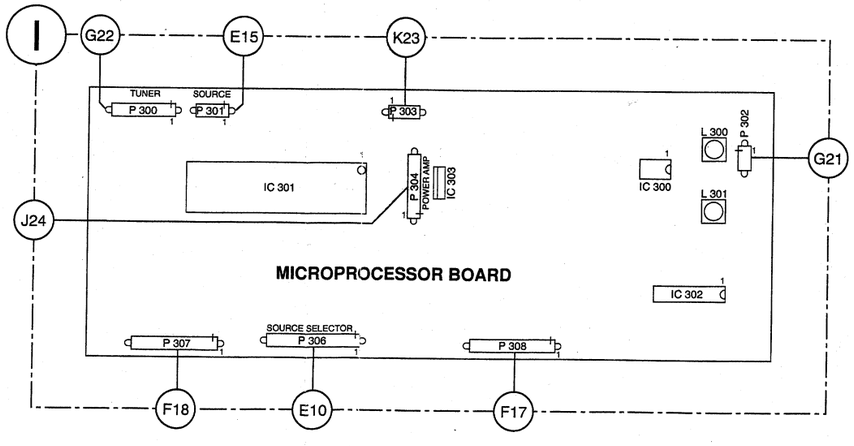

J
I24
B4
B5
B4
P 906 BROWN
P 905 BROWN
P 904 YELLOW
P 903 YELLOW
P 902 BLACK
P 901 ORANGE
P 900 ORANGE
P 915
P 916
P 917
P 918
M27
E9
E12
D 928
P 911 VIOLET
P 910 VIOLET
P 909 BLUE
P 908 BLUE
P 907 WHITE
D 917
HS 900
R 966
M 952
R 960
R 958
M 956
B5
AMPLIFIER BOARD
HS 901
L25
D7
P 912
P 914
RL 900
M 954
R 977
R 987
R 990
M 953
IC 900
P 913
K26

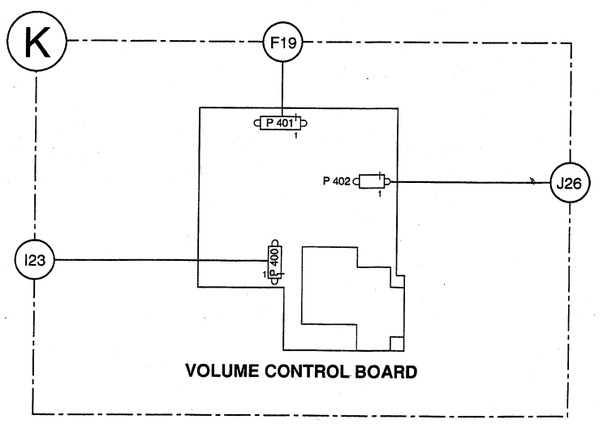

L
LOUDSPEAKER CONNECTION BOARD
P 801
J25


M
J27
P 1000
P 1001
RC5 SOCKET BOARD


H
P 000
P 001
F20
VOLUME LED BOARD


IC 100
IC 101
IC 102
SW 103
SW 109
SW 116
SW 104
SW 105
SW 106
SW 107
SW 108
SW 110
SW 111
SW 112
SW 113
SW 114
SW 117
SW 118
SW 119
SW 120
IC 104
FRONT PANEL BOARD
P 100
SW 125
SW 129
IC 105
IC 106
SW 130
SW 131
SW 132
SW 133
SW 134
P 109
R 145
R 155
R 181
P 103
P 105
P 104
I17
I18
K19
H20
E13

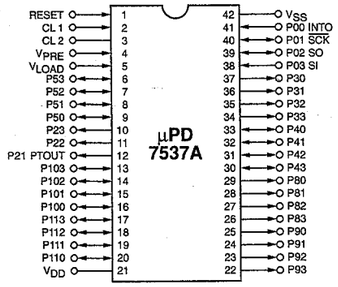

I
G22
E15
K23
TUNER
SOURCE
P 300
P 301
P 303
IC 301
P 304 POWER AMP
IC 303
IC 300
L 300
P 302
L 301
G21
J24
MICROPROCESSOR BOARD
IC 302
P 307
SOURCE SELECTOR
P 306
P 308
F18
E10
F17


K
F19
P 401
P 402
J26
I23
P 400
VOLUME CONTROL BOARD

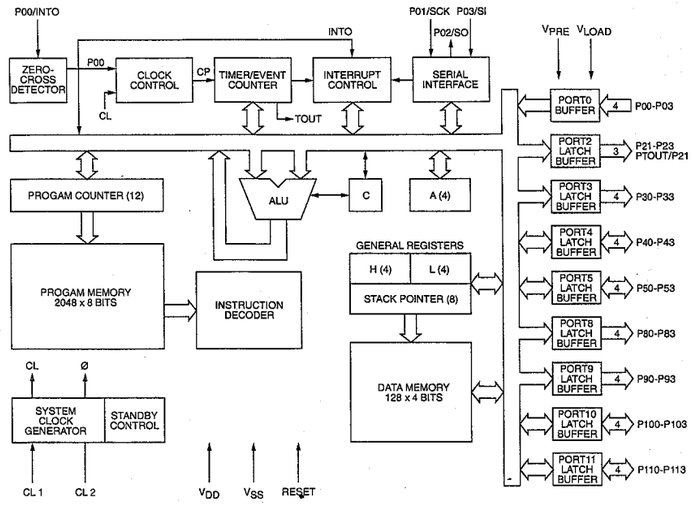
CS 33 085

# COMPONENTS

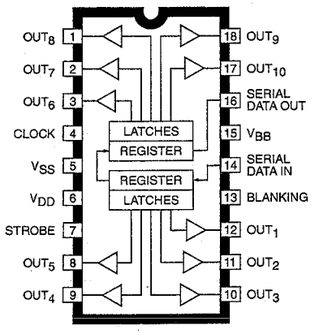
## PIN CONFIGURATION IC 101, 102 µPD7537A



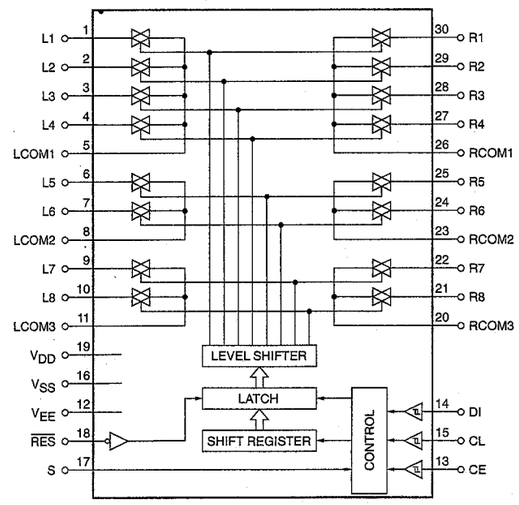

## BLOCK DIAGRAM IC 101, 102 µPD7537A




## BLOCK DIAGRAM IC 103, 105, 106 UCN-5810A




## BLOCK DIAGRAM IC 202 LC7821




## LIST OF ELECTRICAL PARTS

| | | |
|---|---|---|
| 4822 209 73435 | LC 7217 SNYO | |
| 4822 209 73434 | LA 3401 SNYO | |
| 4822 209 71785 | LA 1266 SNYO | |
| 5322 130 42221 | 7812 3 % FAI/NEC/SGS | |
| 4822 209 30671 | UPD 7537 ACU-225 | |
| 5322 209 83423 | UCN 5810 A | |
| 4822 209 62435 | RC 4560 N / NJM 4560 D | |
| 4822 209 63277 | 78 M 05 MOT | |
| 4822 209 73452 | LM 833 N / ELDB 793 NSC | |
| 4822 209 72748 | LC 7821 SANYO | |
| 4822 209 30672 | TMP 68 HC 11 E9N TOS | |
| 4822 209 62433 | LA 2231 B DIP/24S | |

| | | |
|---|---|---|
| C001 | 4822 125 50332 | TR.15 7,5/50PF VCT 56 |
| C002 | 4822 125 50329 | TR.13 4,5/20PF VCT 56 |
| C305 | 4822 125 50329 | TR.13 4,5/20PF VCT 56 |
| C311 | 4822 125 50386 | TR.12 3/10PF VCT 56 |
| C325 | 4822 125 50329 | TR.13 4,5/20PF VCT 56 |
| C327 | 4822 125 50329 | TR.13 4,5/20PF VCT 56 |
| C500 | 4822 122 33556 | KERKO.B-SG 3300 PF 20% |
| C905 | 4822 124 42328 | ELKO CB 1000 UF 50V |
| C907 | 4822 124 42328 | ELKO CB 1000 UF 50V |
| C908 | 4822 124 42327 | ELKO 4700 UF 20% 80V |
| C920 | 4822 124 42327 | ELKO 4700 UF 20% 80V |
| C926 | 4822 124 42326 | ELKO 2200 UF 50V |
| C928 | 4822 124 23506 | ELKO CB 4700 UF 16V |
| C931 | 4822 124 42326 | ELKO 2200 UF 50V |
| C942 | 4822 124 40214 | ELKO CB 1000 UF 25V |

| | | |
|---|---|---|
| 5322 130 34052 | DIODE 1N4151 | |
| 4822 130 81002 | DIODE SVC 321 SP-ABCD | |
| 4822 130 30862 | Z DIODE 9,1 C 0,5W | |
| 4822 130 30621 | DIODE 1N4148 WW. | |
| 4822 130 81006 | Z DIODE 6,2 C 0,5W | |
| 5322 130 32849 | Z DIODE 4,7 C 0,5W | |
| 4822 130 81003 | DIODE KV 1310 | |
| 5322 130 82122 | Z DIODE 10 C 0,5W | |
| 5322 130 30684 | DIODE 1N4002-GA | |
| 4822 130 31438 | DIODE 1N4001-GA | |
| 4822 130 82078 | GLR.D 5S BA 20 | |
| 5322 130 32184 | DIODE BYV 27-50 | |
| 4822 130 82854 | GLR.D 3S BA 20 | |
| 4822 130 82856 | Z DIODE 20 C 0,5W | |
| 4822 130 32213 | DIODE BYV 28-50 | |
| 4822 130 30842 | DIODE BAV 21 ITT | |
| 4822 130 80515 | Z DIODE 5,1 C 0,5W | |
| 4822 130 81615 | Z DIODE 12 C 0,5W | |
| 4822 130 82855 | Z DIODE 2,7 C 0,5W | |
| 4822 130 33785 | Z DIODE 16 C 0,5W | |
| 4822 130 81781 | Z DIODE 3,3 C 0,5W | |
| 4822 130 32636 | DIODE TLG 226 TOS | |
| 4822 130 82843 | DIODE GL-5 ED44 SHARP | |

| | | |
|---|---|---|
| L001 | 4822 156 11094 | MW-VORKR. |
| L002 | 4822 156 11095 | LW-VORKR. |
| L003 | 4822 156 11091 | SPULE (LW OSZ.) |
| L004 | 4822 156 11089 | SPULE (MW-OSZ.) |
| L005 | 4822 157 53632 | DROSSEL 39 MH 5% |
| L300 | 4822 157 62294 | SPULE 7X7 |
| L301 | 4822 157 62294 | SPULE 7X7 |
| L305 | 4822 156 11099 | UKW-SPULE 7/115/A |
| L306 | 4822 156 11096 | UKW-SPULE 1/3/A |
| L307 | 4822 157 60206 | HF-DROSSEL |
| L308 | 4822 156 11098 | UKW-SPULE 7/113/A |
| L309 | 4822 156 11097 | UKW-SPULE 7/114/A |
| L311 | 4822 157 53631 | DR AX 0309-GA 1,5 UH |
| L400 | 4822 157 63646 | SPULE IND 68 MH TOKO |
| L401 | 4822 157 63646 | SPULE IND 68 MH TOKO |
| L900 | 4822 157 63645 | SPULE 1 UH 10% |
| L901 | 4822 157 63645 | SPULE 1 UH 10% |
| F002 | 4822 157 62739 | KERAMIK-FILTER 70 |
| F008 | 4822 242 72289 | AM-ZF SFL 450 J3 |
| F009 | 4822 156 11092 | FM-DEM.I |
| F012 | 4822 156 11104 | FILTER (PILOT) LPF-V20 |
| F013 | 4822 156 11104 | FILTER (PILOT) LPF-V20 |
| F015 | 4822 214 51727 | FILTER (NACHBARKANAL) |
| Q001 | 4822 242 72294 | QUARZ 7,2 MHZ |
| Q002 | 4822 242 72295 | KER.RES. 10 CSB 456 F11 |
| Q100 | 4822 242 73605 | KER.RES. 68/3 640 KHZ |
| Q101 | 4822 242 73605 | KER.RES. 68/3 640 KHZ |
| Q300 | 4822 242 73862 | KER.RES. 104 CSA 8,0 MT |
| Q301 | 4822 242 73604 | KER.RES. 11 CSB 456 F15 |
| Q312 | 4822 242 72294 | QUARZ 7,2 MHZ |

| | | |
|---|---|---|
| R066 | 4822 100 20694 | ESTR.SK10-A 100 KOHM LIN |
| R069 | 4822 100 20694 | ESTR.SK10-A 100 KOHM LIN |
| R145 | 4822 101 30766 | POTENTIOMETER |
| R155 | 4822 101 30767 | POTENTIOMETER |
| R181 | 4822 101 30766 | POTENTIOMETER |
| R323 | 4822 116 53666 | KSW SIA 47 OHM 5%-GA |
| R327 | 4822 116 53666 | KSW SIA 47 OHM 5%-GA |
| R332 | 4822 052 10129 | KSW SIA 12 OHM 5%-GA |
| R409 | 4822 101 21173 | POTENTIOMETER EUW-MU6 |
| R7010 | 4822 116 90787 | FOTOWDST. MKY-54 C 459 M |
| R903 | 4822 111 70183 | KSW SIB 1 OHM 5%-GA |
| R915 | 4822 116 83526 | KSW SIA 22 OHM 5%-GA |
| R926 | 4822 116 83525 | KSW SIA 10 OHM 5%-GA |
| R936 | 4822 116 53668 | KSW SIB 4,7 OHM 5%-GA |
| R938 | 4822 116 53668 | KSW SIB 4,7 OHM 5%-GA |
| R947 | 4822 116 83527 | KSW SIA 680 OHM 5%-GA |
| R951 | 4822 116 83522 | MOW AX 0922-GA 1,5 KOHM |
| R959 | 4822 116 83521 | MOW AX 0411-GA 1,5 KOHM |
| R965 | 4822 116 83523 | MOW AX 0922-GA 2,2 KOHM |
| R966 | 4822 101 11158 | ESTR.S6 470 OHM LIN |
| R974 | 4822 116 83527 | KSW SIA 680 OHM 5%-GA |
| R975 | 4822 116 83522 | MOW AX 0922-GA 1,5 KOHM |
| R977 | 4822 101 11158 | ESTR.S6 470 OHM LIN |
| R979 | 4822 116 83524 | MOW LI 0411 3 KOHM 5% |
| R982 | 4822 116 83521 | MOW AX 0411-GA 1,5 KOHM |
| R984 | 4822 116 53666 | KSW SIA 470 HM 5%-GA |
| R988 | 4822 116 83523 | MOW AX 0922-GA 2,2 KOHM |
| R998 | 4822 116 81858 | KSW SIB 10 OHM 5%-GA |

| | | |
|---|---|---|
| 5322 130 44647 | BC 368 | |
| 4822 130 42121 | 2 SK 30 A-TM-Y | |
| 4822 130 44196 | BC 548 C | |
| 4822 130 44197 | BC 558 B | |
| 4822 130 40937 | BC 548 B | |
| 4822 130 62919 | ZTX 450 S | |
| 4822 130 40902 | BF 240 | |
| 4822 130 41096 | BC 550 C | |
| 4822 130 61755 | BC 560 C | |
| 4822 130 61298 | 2 SK 544 E | |
| 4822 130 62488 | BF 987 E7715SI | |
| 4822 130 40988 | BC 328-25 PHI/IT | |
| 4822 130 44121 | BC 338 | |
| 4822 130 40959 | BC 547 B | |
| 4822 130 41691 | BC 556 B | |
| 4822 130 62918 | BD 826-16B | |
| 4822 130 62268 | BDT 64 | |
| 4822 130 62269 | BDT 65 C | |
| 5322 130 61575 | BDT 64 C | |
| 4822 130 62917 | BD 645 F | |

**MISCELLANEOUS**

| | | |
|---|---|---|
| | 4822 218 10443 | IR REMOTE CONTROL TRANSMITTER |
| IC100 | 4822 130 91047 | VF-DISPLAY FUTABA |
| RL900 | 4822 280 70371 | RELAIS VB 36 MBU (-UL) |